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THE MIGRANT

A QUARTERLY JOURNAL
DEVOTED TO TENNESSEE BIRDS

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FIRST RECORD OF A VARIED THRUSH IN TENNESSEE

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Abstract: An adult Varied Thrush (*Ixoreus naevius*), a western North American bird, was identified in Walden (Hamilton County), Tennessee, in the winter of 1990-1991. This new record for the state represents an extralimital or casual winter visit by a Varied Thrush. In all occurrences the Varied Thrush appeared to be the same unaccompanied male that was sighted on eleven different dates between 13 December 1990 - 12 March 1991. Almost daily watches were made between 13 December 1990 - 31 March 1991. Local habitat, individual sightings, feeding behavior, and limited interspecific interactions are described. A literature search confirmed that the species is an extremely rare, fall-winter visitor to the southeastern United States. Including this new record, fourteen reports from east of the Mississippi River are identified from Maryland, Virginia, Tennessee, Georgia, and Florida.

INTRODUCTION

The Varied Thrush (*Ixoreus naevius*) is native to western North America. The species, also known as Oregon Robin and Alaska Robin (Eliot 1923; Finley 1936), breeds from northcentral Alaska and central Yukon to northwestern California, northern Idaho, and northwestern Montana. In winter it usually ranges from southern British Columbia, Canada, and northern Idaho to westcentral and southern California and northeastern Baja California, northern Mexico (Reilly 1968). Casual winter visitation by the Varied Thrush includes the major portions of Nevada, Utah, Wyoming, and Colorado. Additionally, extralimital records of winter sightings are well established across southern Canada and northcentral United States to the Atlantic areas of southern Quebec and the northeastern United States (Keith 1968).

When Keith (1968) reviewed all extralimital records of the Varied Thrush, he located only single occurrences in Virginia and Maryland. At that time no other records existed from southern states, and he specifically stated: "The states

of Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana are missing from the roster of states where this species has occurred so far, though it seems likely that someday the species may be found in at least some of them."

As predicted by Keith (1968), sightings have occurred in the lower Mississippi River and southeastern region. Peterson (1980) described the Varied Thrush as a casual winter straggler in eastern North America with many recent winter records at feeders from maritime Canada to southeastern United States. The American Ornithologist's Union (1983) gave the winter distribution in Atlantic coastal states as casual widely from Maryland south to southern Florida. Although winter distributions given by Peterson and A.O.U. seem correct, actual records and descriptions of the Varied Thrush in the southern United States are either very limited or nonexistant for several states within the more recently described winter distribution.

METHODS

Observances - Following my initial sighting of a Varied Thrush in Walden (Hamilton County), Tennesee, on 13 December 1990, morning watches were kept daily through 31 March 1991 for 1-2 hours after daylight (except for the dates 24-27 December 1990 and 3-10 March 1991). Regularly visited during this time by 14 to 22 bird species, four feeders were maintained in a 5 m radius from a WNW-facing house window, from which most observations were made. Two feeders were filled with general seed mixtures; one received animal fat, and another dispensed wheat and cracked corn (maize). The feeders hung from trees in a "natural area" that receives grass clippings and mulched leaves from maintained areas of the yard. Initiated 29 January 1991, outdoor temperatures were recorded from a window-mounted, commercial thermometer, readings from which correlated well with local National Weather Bureau reports. A digital clock was positioned near the window, and viewing lengths were usually noted. All times are EST. Binoculars (7 x 50 mm) were use for more distant observations, all of which were recorded as soon as possible.

Location - Approximately 592± 2 m above sea level, 3818 Walden Wood Ln., Walden, TN 37377, is located ca. 1 km W of the eastern escarpment of the Cumberland Plateau, locally known as Walden's Ridge. The surrounding area is often referred to conveniently as Signal Mountain, an adjacent township with a post office. Both communities are accurately described as commuter neighborhoods and suburbs of Chattanooga. The Varied Thrush was first seen on leaf-covered ground and under feeders of cracked-corn and mixed seed. The immediate spot was visited often by White-throated Sparrows (*Zonotrichia albicollis*), Song Sparrows (*Melospiza melodia*), Fox Sparrows (*Passerella iliaca*), Mourning Doves (*Zenaida macroura*), Rufous-sided Towhees (*Pipilo erythrophthalmus*), and Dark-eyed Juncos (*Junco hyemalis*). Other ground visitors included Northern Cardinals (*Cardinalis cardinalis*), Blue Jays (*Cyanocitta cristata*), Northern Flickers (*Colaptes auratus*), and sometimes European Starlings (*Sturnus vulgaris*).

Habitat - The general area has more than a 50% tree canopy, mainly from indigenous species that characterized its original mixed mesophytic forest of oaks (*Quercus*), hickories (*Carya*), and their many associated species. The terrain generally is less than level, and both wet-weather and permanent streams drain eastward toward the escarpment. A wide variety of bird habitats exist in: cur-

rently undisturbed woods that accompany nearly all residences and represent either second growth forests or forest that previously experienced only selective cutting; so-called "natural areas" that receive minimal human interference; introduced trees and shrubs (including a few small orchards); a few pastures, and numerous lawns. Planted and naturally distributed native white pines (*Pinus strobus*), Virginia pine (*P. virginica*), and Canadian hemlock (*Tsuga canadensis*) are locally common. These conifers may be significant since the Varied Thrush's usual habitat is coniferous forests, although winter habitats include a variety of moist woodlands and thickets (Bent 1949; Reilly 1968). Moreover, many residents maintain feeding stations, particularly during winter.

The front yard, in which I most often observed the Varied Thrush, is mainly an open wood with both leaf-mulched and grass-maintained areas. Additionally, there exist a small orchard, open lawn, gravel driveway, and a wet-weather stream along with blackberry (*Rubus* sp.) briars and multiflora rose (*Rosa* sp.) brambles, which provide winter food and protection to wildlife. Overstory trees consist of two, 1-century old post and black oaks (*Quercus stellata* and *Q. velutina*, respectively) with younger and other species of oaks - blackjack (*Q. marilandica*), white (*Q. alba*), and red (*Q. rubra*) - pignut hickory (*C. glabra*),red maple (*Acer rubrum*), black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), wild black cherry (*Prunus serotina*), black walnut (*Juglans nigra*), and Canadian hemlock (*Tsuga canadensis*). Understory trees include dogwood (*Cornus florida*) and serviceberry (*Amalanchier laevis*). Both Lil Dubke and Daniel Jacobson commented separately on the similarity of the tree-covered yard, especially with the wet-weather stream, to the habitat of the 1980 sighting in Dade County, GA (Jacobson 1986). In brief, the local habitat is an open woodland, and thus it resembles a described winter habitat of the Varied Thrush (A.O.U. 1983).

Literature searches - Personal inquiry, traditional, and computer-assisted literature searches were conducted to identify all known records of the Varied Thrush in the southern United States. A computer search of BIOSIS and *Zoological Record* (1978-present) included as key words common and scientific names, plus *Zoothera naevia*, the scientific designation used in European circles (A.O.U. 1983; Madge et al. 1988).

Photographs - Mr. Bruce Wilkey, Signal Mountain, TN 37377, used a 35 mm camera, Kodocolor Gold 200 film, 1250 mm Celestron telephoto lens, and tripod to prepare the accompanying prints, Figures 1 and 2.

RESULTS

First sighting - On 13 December 1990 ca. 0930 from inside my residence I first spotted an unrecognized bird. From a distance of ca. 3 m it appeared slightly smaller than an American Robin (*Turdus migratorius*) and larger than a Rufus-sided Towhee, both of which came to mind but failed to match all that I was seeing. Initially I noticed a black band around an otherwise robin-like breast with towhee-colored feathers. Viewed from a superior angle, the band's center over the sternum appeared wider (or deeper) than the lateral portions. Two other distinguishing features were noted during the 4 to 5 minute observation. The wings had distinctive flame orange-colored feathers with two anterior orange bars separated by dark brown and followed by less distinctive orange distally. A third

conspicuous feature was an eyebrow-like arch of flame-orange color that continued down the neck to the shoulder. This "eyebrow arch" was narrower than the orange wingbars. In typical winter lighting of overcast conditions, posterior feathers appeared dark.

Other than two brief moments, when this new visitor flew up and perched ca. 2-3 m in dogwood and serviceberry trees, it was on the ground either feeding or presumably searching for food. Its movements were remarkably suggestive of the American Robin because of short runs followed by a pause, during which its head was tilted forward as if it were listening for or closely watching potential food. A definite food source that I saw it eating was two acorns. Using its beak to strike the acorns' tough covers, its head and body movements were similar to those of Blue Jays performing the same task. No vocalizations were heard, and no attempts to vocalize were observed before it flew out of sight (from inside my house) toward a neighbor's yard to the north.

Identification - Consulting Robbins, Bruun, and Zim (1983), I was confident that I had seen an adult male Varied Thrush and telephoned Ken and Lil Dubke, who told me that the Varied Thrush was observed previously in nearby northern Georgia but never in Tennessee (Nicholson 1983; Nicholson and Stedman 1988). At Lil Dubke's suggestion, I collected and distributed where the Varied Thrush had fed the following: acorns, cracked corn, and Italian bread, the last of which was the closest I could come to dried angel food cake, which was what she said the Varied Thrush in Trenton, Georgia, had eaten. Ken and Lil Dubke spent two hours later that day at my house, but the accidental visitor remained unconfirmed. Nevertheless, Ken Dubke encouraged me to submit a rare bird report to TOS's Certification Committee, which I completed and returned on 16 January 1991. The report was accepted.

Second sighting - On 25 January 1991 at 0806 I noticed a male Varied Thrush was again under the feeders. I saw him pick up from the ground 6 different cracked corn fragments, which were visibly identifiable from my 2-3 m distance, and the pieces disappeared inside his beak. Previously observed distinguishing characteristics were again noted. Total observation time was ca. 3 minutes and 10 seconds.

Again I called Ken and Lil Dubke, who were unable to come at this time and who suggested nearby birdwatchers to contact. While talking on the phone to Signal Mountain birdwatcher Jonnie Sue Lyons, a male Varied Thrush made a less than 1-minute appearance under the feeders at ca. 0830. Jonnie Sue Lyons arrived before 1000 and was followed shortly thereafter by birdwatchers John Henderson and Paul Harris, none of whom saw the extralimital visitor until two days later.

Third sighting - The next morning, Saturday 26 January 1991, ten local birdwatchers had gathered and departed for more successful birding elsewhere when local birdwatcher Johnny T. Parks arrived ca. 1100 and introduced himself. He had brought a recording (University of Florida edition) of the Varied Thrush and suggested that we play it outside to attract and confirm the presence of this unreported species. After one playing of the tape, a robin-like bird flew overhead and landed briefly in a white oak (*Q. alba*). Temporarily blinded by the sun's angle, we saw only a sillouette. Our suspect flew to a nearby hickory (*C. glabra*), and fortunately for us he provided there during the next ca. 1.5 minutes convincing evidence as to his identity. The breast band, orange wing bars, and eyestreak were consistent only with a Varied Thrush, and the black breast band

confirmed his gender. Johnny Parks witnessed them all, and I felt vindicated. As discoverers are prone to state: "It was a great moment!"

Now to spread the word. Local bird photographer Bruce Wilkey was contacted and came to take documentary photos. The Varied Thrush failed to respond to several playings of the tape recording that afternoon, but Bruce Wilkey photographed it the next day (Figures 1 and 2), as did Dr. John Harris of Birmingham, AL, who had learned of the Varied Thrush's visit from the Tennessee Hotline.

Fourth sighting - On Sunday 27, January 1991 ca. 20 persons gathered on the street to see the western visitor. About 0830 he was spotted feeding on a neighbor's lawn simultaneously with American Robins. This appearance was the first of four on this day with the last occurrence at 1550. Two appearances apparently were in response to the playing of taped recordings of Varied Thrush calls. During these observances the Varied Thrush landed briefly in tops of neighborhood trees, flew across the street to other perches, but exhibited little, if any, feeding and no vocalization. During the day over 30 people saw the bird.

Additional sightings - Along with summaries of the first four sightings described above, additional sightings, dates, recorded ambient temperatures, general weather conditions, length of observations, and observers are presented in Table 1. Only in direct sunlight (2 February 1991) were the dark colors noted as distinctive. The only black areas were the breast band and eyestreak, whereas the backside was definitely slate-gray all the way to the tail. Watching a front view through binoculars (28 and 29 January 1991), I saw him preen, wipe his beak on the (sweet gum and apple tree) limb on which he perched, and three times spread his tail feathers, revealing white spots (barely visible in color print Figure 1) that clearly resembled the undersurface in published photographs of the Varied Thrush (Martin 1970).

Observations of foraging and feeding - In addition to above-mentioned feedings on acorn and cracked corn, other observations are worth noting. Suggestive of robin-like foraging, the Varied Thrush often moved by a series of 2-4 hops followed by a pause. Allowing for minor obstacles such as tree trunks, successive hoppings were usually in the same direction. When moving, his body was tilted forward; when stopped, his posture straightened, unless he bent forward (sometimes with the head turned) as if to identify potential food. Hopping and pausing characterized his foraging whether on grass, moss-covered ground, or a packed-gravel driveway. Also, I once saw him move in this typical fashion on the asphalt street, though he only pecked after moving onto a lawn. Previously, this species was reported to be similar in actions to the American Robin (Terres 1980).

The wet-weather stream located ca. 28 m from my usual watching point was often frequented by the Varied Thrush. Since the stream was below the line of vision from my usual vantage site, I most often saw him fly up to overhanging branches of red maple and sweet gum trees or down to the ground. However, Dolly Myers and Jeff Wilson (Table 1), positioned on the street, saw the Varied Thrush turning over leaves at the stream's edge as if in search of insects or other forms of food. Twice I also saw similar leaf-turning and ground-pecking behavior in the natural areas of the yard. These observations were remarkably consistent with an earlier description, attributed to Law (1921), of foraging in dead fallen leaves by grasping debris in its bill, simultaneously jumping backward, throwing the leaves back and to the side, and then eating exposed insects or vegetable mat-

ter (*cit. op.* in Root 1988).

Feeding on an acorn caused temporary muzzling on one occassion (2 Feb. 1991). After striking a few times at an acorn, the Varied Thrush raised its head and revealed a pierced acorn around its bill. Failing to remove the muzzle by repeatedly striking the ground and shaking its head, it hopped from the open area to the cover of a nearby hemlock. Following a few pecks at the ground, its bill was free after ca. 2 minutes. Unlike a previous report (Nichols 1940, in Terres 1980) of an acorn impaled on a Varied Thrush's bill, this Varied Thrush unmuzzled itself and continued pecking that was interspersed with an erect head and a rapid movement of the bill, as if he were chewing acorn contents prior to ingestion.

Having witnessed the temporary muzzling, I decided to reduce chances of a recurrence by cracking the remaining acorns. To my surprise, all the acorns were infirm and infected with unidentified larvae. Thus, the question was raised as to whether the Varied Thrush was feeding on acorn or insect matter, or both?

Interspecific interactions - Observed interaction with other birds was extremely limited. Only on two occassions did I see other birds nearby. On 31 January 1991 the Varied Thrush foraged on the ground ca. 2 m below a Pileated Woodpecker (*Dryocopus pileatus*) feeding on suet. When the ground was snow-covered, the Varied Thrush perched in a dogwood for 1-2 minutes within 1 m of a Rufous-sided Towhee. During the fourth sighting, 27 January 1991, Daniel Jacobson (pers. comm.) suspected aggressive behavior by an American Robin toward the Varied Thrush, which deferred by distancing itself from the Robin. Watching regularly in mid-morning for nearly a week, Bruce Wilkey (pers. comm.) noticed that the Varied Thrush approached the ground under feeders either after or between the visits of other species.

Winter Distribution - Since Keith's review (1968) with single accounts in Maryland and Virginia, the Varied Thrush now has a dozen additional records in south-eastern states. They include: Virginia, 7 additional records (Kain 1987; Turner and Middleton 1991); Georgia, 2 records (Haney 1986; Jacobson 1986); Florida, 2 records (Kilmer 1978; Dowling 1988), and most recently Tennessee (this report). Previously, Keith (1968) noted the Varied Thrush's occurrence in Texas as far as the Gulf coast. More recently the species was listed in a category requiring more than ten records of winter visits in Texas (DeSante and Pyle 1986). Louisiana has two records (Newman 1985; Cardiff and Dittman 1989), both from the Sabine National Wildlife Refuge, located west of the Mississippi River and not far from Texas.

Southern and eastern areas for which the Varied Thrush is still unreported (DeSante and Pyle 1986) and for which birdwatchers should be on the lookout are: Kentucky, West Virginia, Delaware, District of Columbia, North Carolina, South Carolina, Alabama, Mississippi, and Arkansas.

Sightings of the Varied Thrush in the southern United States may be explained by two different possibilities. Either casual winter visits on the part of the Varied Thrush have increased (perhaps as a result of winter range expansion), or efforts on the part of birdwatchers in the affected areas have increased quantitatively and/or qualitatively. Only continued and long term monitoring will provide evidence as to which alternative is more likely correct.

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Accepted 1 July 1991.

FIGURE 1: View of supercilious eye streak and wing bars of Varied Thrush, perched in oak tree. Walden (Hamilton Co.), Tennessee. 27 January 1991. Color photo by Bruce Wilkey.

FIGURE 2: View of black breast band, orange throat, and - to lesser degrees - eye streak, wing bars, and inconspicuous pattern on tail undersurface of Varied Thrush, perched in sweet gum tree. Walden (Hamilton Co.), Tennessee. 27 January 1991. Color photo by Bruce Wilkey.

Table 1. Summary of Known Sightings of Varied Thrush in Tennessee

Date	Approx. Time	Temp. (F.)	General Weather Conditions	Length of Observ. (minutes)	Observer(s)
13 Dec '90	0930	NR	Overcast	4-5	M. Edwards
25 Jan '91	0806	NR	Overcast	3	M. Edwards
26 Jan '91	1120	NR	Bright Sun	1.5	M. Edwards; J. Parks
27 Jan '91	0830;etc	NR	Overcast	ca. 20 total	Cf. Text;>30 people
28 Jan '91	0820	44	Rain early;sun	8.25	M. Edwards
29 Jan '91	0741	41	Overcast	3	M. Edwards
29 Jan '91	0755	41	Overcast	ca. 10	D. Myers; J. Wilson
30 Jan '91	pre-1200	51	Rain; fog	?	B. Wilkey
1 Feb '91	0736	28	Clear	2	M. Edwards
2 Feb '91	0751;0815	33	Clear	2; 1.1	M. Edwards
2 Feb '91	0834;0844	33	Clear; sun	5.1; 8	M. Edwards; ca. 20 others
15 Feb '91	0715	9	5cm snow;flurries	3	M. Edwards
12 Mar '91	0841	46	Clear;sun	22	M. Edwards

ANNOUNCEMENT

Wallace J. Coffey
will assume the editorship of
The Migrant
beginning with the March 1992 issue.
All new manuscripts should be addressed to Wallace at
100 Bellebrook Drive, Bristol, TN 37620.

The Migrant, 62(3):66, 1991.

ARCTIC TERN AT ISLAND 13, LAKE COUNTY, TENNESSEE: THE FIRST STATE RECORD

WILLIAM G. CRISWELL
Route 4, Box 206
Dyersburg, TN 38024

On 6 July 1990 at approximately 1400 I spotted what appeared to be a tern of the Common/Forster's type standing at the water's edge of Island 13 in Lake County. Initially, I was several hundred meters from the bird. Eventually I was able to observe the bird from less than 6 m. As I moved closer to the bird I could tell that it was in breeding plumage. It had a black crown and nape and a short, completely blood-red bill with no trace of black. The very short legs were also blood-red and seemed to start at the knee joint. The bird stood low to the ground. The body of the bird was gray, darker above and a lighter gray, but not white, below. A white cheek stood in obvious contrast to the gray of the neck and breast.

The wings and tail looked very long, giving the bird a long, drawn-out appearance. The tips of the wings were crossed above the tail. In some postures the wings seemed to be equal in length to the tail; in other postures they went well beyond the tail. I was able to see the underside of one wing and it appeared all white.

After I studied the bird for several minutes at a distance of about 10 m or less, it flew about 40 m to a sandbar in the water. I waded out toward the bird and this time approached to within 6 m. (I could no longer focus my glasses on the bird.) After I studied the bird for several more minutes it flew upstream and began fishing about 200 m away. As the bird turned in flight I could see much white under the wings. As it flew away from me I could see little of the underwings but there was a startling contrast between the rump and tail, which were snow white, and the body of the bird. I could not see pale or white patches in the wings; they appeared to be uniformly gray, as in Common Terns (*Sterna hirundo*), not like Forster's Terns (*Sterna forsteri*). I last saw the bird angling across the Mississippi River, heading upstream.

The bird appeared to be very tame, taking little notice of my close presence, while all of the Least Terns (*Sterna antillarum*) around it flew away. The bird indulged in little activity other than probing occasionally in the water and walking and turning in various directions when I was close. It appeared to want to rest or sleep. I was able to view the bird from various angles, but I did not hear it make any sounds.

I spent at least 30 minutes (perhaps longer: I had no watch) observing the bird. The sky was lightly overcast with light wind. Viewing conditions were excellent. I observed the bird with Bushnell 7 x 50 binoculars and a Bausch and Lomb Balscope Zoom 60 scope. Two field guides were consulted on the site and others were later used. These observations apparently constitute the first documented record of an Arctic Tern (*Sterna paradisaea*) in Tennessee.

Accepted 31 January 1991.

The Migrant, 62(3):67-68, 1991.

COMMENTS ON THE FIRST ARCTIC TERN RECORD FOR TENNESSEE

STEVEN W. CARDIFF and DONNA DITTMANN
Members, Louisiana Bird Records Committee

We were asked to evaluate the Tennessee report of the Arctic Tern because of our experience with the species. We are both familiar with Arctic Tern from active birding in California during 1972-1984, where the species is a regular offshore migrant and have documented the first four records (six individuals) from Louisiana. We also have extensive experience with all similar and potentially confusing species (except for Roseate Tern).

The date, 6 July, seems reasonable for the occurrence of this species within our region. The dates of the Louisiana records are 5, 10, 22, and 23 June, and we feel that these birds represent late spring migrants that have become trapped in the Gulf of Mexico. So it seems that 6 July would be consistent with this pattern if a bird were brave enough to proceed into the interior. This date does not exclude Common Tern from consideration. Common Terns in full alternate plumage appear on Louisiana beaches in early July. These high-plumage individuals are considered by us to be late migrants rather than summering individuals. Summering birds are usually worn or already in some obvious stage of molt by this time.

The distance at which the bird was observed (as close as 18 ft.) is certainly close enough to verify critical plumage and soft part characters. The description of the bird is relatively good. Comments on the characters noted follows:

Bill: a small, all red bill is one of the best marks for this species. Many Arctic Terns have the very end of the bill tipped with dusky black. This black does not extend back along the upper surface of the culmen. Common Terns have a dark tip and black running back along the culmen to the base. The general coloration overlaps between the two species. Few high-plumage Commons show the orange-red bill illustrated in most of the older fieldguides. The bill coloration is much more similar to that of Arctic, a dark red. A word of caution, if the bill of a Common is not well seen (distance or poor lighting conditions), the black culmen and tip may "disappear" into the background, giving the observer the impression of a bird with a short, all red bill. A careful observer should be able to discern the pattern of the bill at 18 ft. with good light conditions; the entire "blood red" bill certainly suggests Arctic Tern and would probably exclude 99.9% of Common Terns.

Leg length: this, of course, is the definitive character used to identify Arctic Tern in the hand; they have very short tarsi (16 mm or less). Common Terns have tarsi 17.5 mm or more. Less than 2 mm is not a very large value and many Common Terns can look relatively short-legged, even in comparison to other Common Terns. Likewise, all Commons look short-legged relative to Forster's Tern. Thus, this is a very subjective character under field conditions. Arctic Terns do look strikingly short-legged when you finally see one after straining your eyes scanning through large flocks of terns. In fact, the two immatures we found and collected in Louisiana were detected in this fashion. However, certain individual Common Terns can fool almost anybody, especially when seen without the benefit of comparisons with nearby individuals of other species. Leg coloration noted by the observer also favors Arctic Tern, but Common Tern shows a wide range of leg colors (although most are typically more orange-red).

White cheek: a classic mark for Arctic Tern, although not exclusive to this species.

High-plumage Common Terns can look just as gray on the underparts and this color frequently extends up to the throat, giving this species the appearance of a white cheek also. Arctic Terns often have gray extending up onto the throat, further separating the white cheek from the rest of the gray plumage. A gray throat was not noted in the description.

Uniform gray wings: this pattern is consistent with alternate Arctic Tern in the late spring. Most Common Terns look like they have darker primaries contrasting with lighter gray backs. This contrast is due to wear; the powdery gray surface of the wings wears off; all species of terns will show blackish on the upper surface of the primaries when the wings are worn. A few alternate-plumage Common Terns present on the gulf during late June-July show fresh primaries.

Long appearance to body: this is a good mark for someone familiar with Common or Common and Arctic terns to note. Arctic Tern appears to have more body/wing behind the legs when standing. Common Tern looks as if the legs are placed half way between the bill and the end of the wings.

Wings extending to and beyond tail: this is not a reliable mark and does not help distinguish between Arctic and Common terns.

White flash to undersurface of primaries: both alternate Arctic and Common terns show a contrasting white area on the undersurface of the wings against a darker gray body. The startling contrast, especially of the white rump and tail are suggestive of Arctic, although this mark does not eliminate Common.

In summary, we feel that the description is fairly suggestive of an alternate-plumaged Arctic Tern, but that there are some serious problems: (1) There was no discussion of the dark pattern of the undersurface of the primaries. This mark is discussed to some degree in the National Geographic Society guide as well as Kenn Kaufman's recent guide. This mark is relatively easy to see in the field, and those familiar with Common Tern should be able to discern the difference in pattern. (2) There was no thorough discussion of separating Common Tern. This would lead us to believe that the observer, although he does say that he is experienced with this species, is not aware of the amount of and intensity of gray on the underparts or the range of soft part colors of Alternate-plumaged Common Terns. Note that the fieldguides used for identification all illustrate Common Tern with virtually all white underparts and a black and orange-red bill. If this were the case, the observer would be predisposed to identify the bird as an Arctic. There would be no further attempt to eliminate the possibility that a Common Tern was involved. *Sterna* terns present a formidable identification challenge even to experienced birders. (3) The observer has no experience with Arctic Tern. (4) The fieldguide was consulted first, the description written later after the identification had been made. Although the observer said that the guides did not affect his description, it is difficult to believe that they did not somehow bias the observation.

The most convincing aspect of this record is the report of the blood red bill; this should surely identify most alternate-plumage Arctic Terns IF this mark was really seen well. The combination of other characters noted would help strengthen the record: short legs, white cheek, gray underparts contrasting with white rump and tail and the date would be consistent with anticipated records of this species in the interior.

[Editor's note: the above article was prepared in the form of a letter to Martha Waldron of the TOS Record's Committee after a request for assistance. The letter is published for several reasons. (1) It illustrates the type and extent of behind-the-scenes evaluation that many manuscripts and records require; (2) it supports the identification made by Mr. Criswell; and (3) it should stimulate observers of this and other challenging species to make meticulous notes, refer to numerous field guides, and to consult with persons who have experience with the species. As Editor, I wish to thank Dr. Cardiff and Ms. Dittman for permission to publish the letter and for the time and effort they devoted to this record.]

The Migrant, 62(3):69, 1991.

THE FIRST TENNESSEE RECORD OF A BLACK-SHOULDERED KITE

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On 20 May 1991, while sitting on the front porch of our house in the Millsfield community of Dyer County, my son, wife, and I saw a very white hawk-like bird approach from the north. It was approximately 50 m high. As we watched it without the aid of binoculars, my son commented that the bird had a white tail. After hastily retrieving my binoculars from within the house, I could see that the bird was white from its throat to the tip of its long square-tipped tail. The wing linings were also white. The primaries were dark with a black carpal spot. The wings were long and pointed and held in a moderate dihedral. The bird hovered briefly.

While watching the bird I realized I was seeing a Black-shouldered Kite (*Elanus caeruleus*), a bird I had last seen in southern California in 1976. As the bird was overhead I could not see its dorsal side. While we watched the bird, it circled, gained altitude and moved away to the southeast. It was in sight perhaps 4 or 5 minutes. I am not aware of any other records of this species in Tennessee.

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USE OF WING MOLT PATTERNS TO DETERMINE JUVENILE/ADULT HARVEST RATIOS AND TO RECONSTRUCT NESTING PHENOLOGIES OF MOURNING DOVES

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Abstract: This study is based on the examination of 5,466 Mourning Dove (*Zenaida macroura*) wings collected during 1-5 September in the three years 1988-1990 in west Tennessee. The percent of juveniles in the harvest differed significantly between years and ranged from 68.9-76.1 with an average of 71.8. Nesting phenologies based on the pattern of primary molt in juveniles indicate a nesting peak in late May and early June. Evidence from the literature suggests that our study underestimated the number of young produced early in the nesting season.

INTRODUCTION

Mourning Doves (*Zenaida macroura*) are the most frequently harvested game bird in Tennessee; more than 3 million are usually taken by hunters each year (Keeler 1977). Over 90% of the doves harvested in Tennessee are produced in nests within the state (Orr 1973). In order to assure continued high population levels of Mourning Doves, not just for the sake of hunters, but because Mourning Doves are a part of the natural fauna of Tennessee, it is necessary to understand the factors that influence their nesting success and fledgling survival. The original purpose of this study was to describe nesting success (as defined by the percent of juveniles in the fall harvest) in relation to weather conditions during the nesting season. The focus of the study changed as we became aware of the scarcity of historical information on both Mourning Dove populations and weather data for specific sites in the state.

Few studies have been conducted on Tennessee doves. Monk (1949) summarized information on more than 400 nests in Middle Tennessee; Painter (1967) studied movements; Orr (1973) studied population dynamics and migration; and Burch (1982) and Stogsdill (1983) studied nesting ecology in East Tennessee. In this paper we report on the use of wing molt pattern to determine the percentage of harvested Mourning Doves that are juveniles and to determine hatching dates for those juveniles.

METHODS

During the first 5 days of the Mourning Dove hunting season (1-5 September) in 1988, 1989, and 1990, University of Tennessee at Martin Wildlife Biology students, Tennessee Wildlife Resources Agency (= TWRA) personnel, and other interested persons collected Mourning Dove wings from west Tennessee hunters. One wing (either right or left) was taken from each bird. Wings were stored by drying and freezing and later examined in the laboratory. Each bird was classed as either a juvenile (= a bird hatched during the year of its harvest) or an adult (= a bird that hatched prior to the year it was harvested) by examination of primary coverts. Most juveniles possess light, or buff, tipped greater primary coverts that are readily distinguished from the darker and more homogeneous adult coverts (Swank 1955; Wight et al. 1967; Cannell 1984). Mourning Doves have 10 primaries in each wing. The primaries are molted annually and in sequence from the inside (primary 1) outward. The age of a juvenile Mourning Dove when primaries 1-10 are molted is, respectively, 25, 30, 37, 45, 54, 66, 80, 96, 117, and 142 days (Swank 1955; Haas and Amend 1976). We determined the stage of primary molt (i.e., which primary had most recently been dropped) for each of the juveniles and then estimated the approximate hatching date of the bird by subtracting the bird's estimated age from the Georgian date. For example, a dove that was harvested on 1 September (which is day 244 of the year) and had just molted primary 7 would be approximately 80 days old (based on the molt pattern described by Swank (1955) for known age doves). The approximate date of hatch for this bird would be 244 - 80 = 164. Day 164 is 13 June.

RESULTS

During the 3 years of this study wings were collected from 5,466 Mourning Doves harvested by hunters in 15 counties of west Tennessee. The number of wings collected and the percent of the harvest composed of juveniles for each county and year are presented in Table 1. We found that 68.9 to 76.1% of the doves harvested in west Tennessee during the first 5 days of the hunting seasons 1988-1990 were juveniles. Results of a 2 x 3 contingency table indicate significant differences between years ($X^2 = 26.86$, df = 2, $P < 0.005$). While the percent of juveniles in the 1989 harvest did not differ from that of 1988 (see above), the 1989 and 1990 harvests differed significantly (2x2 contingency table: $X^2 = 7.88$, df = 1, $P < 0.005$). In Figures 1-4 the estimated hatching dates of harvested juveniles are given for each of the three years, respectively, and then collectively. The year with the smallest percent of juveniles in the harvest, 1988, had the hottest and driest nesting season (U.S. Department of Commerce 1988-1990); the year with the largest percent of juveniles in the harvest, 1990, was intermediate to the other years, both in terms of temperature and precipitation.

DISCUSSION

For the purposes of our calculations we assumed that all the Mourning Doves, both adults and juveniles, harvested during 1-5 September were summer residents of west Tennessee and were not immigrants; we also assumed that all of the west Tennessee Mourning Doves that survived to 1 September were still present in the state and had not emigrated. These assumptions are based on Orr's (1973) observations. We recognize, as pointed out by Orr (1973), that a small amount of Mourning Dove migration may actually have occurred by 1 September and that the extent of this migration may vary from year to year.

The technique we used to identify juveniles (color of primary coverts) may result in an underestimate of the actual number of juveniles in the harvest. Sadler et al. (1970) noted that 4.0-10.1 percent of the Mourning Doves in hunter wing samples had completed their wing molt; based on the appearance of their primary coverts, we would have classed all of these birds as adults. In spite of the potential bias it may introduce, Mourning Dove aging has traditionally been done in this manner (Sadler et al. 1970). We chose to rely on this technique to identify juveniles for three reasons: (1) the percent of juvenile doves that have completed their molt by 5 September, while unknown for Tennessee, is probably small; (2) the procedures used for separating adults from juveniles on the basis of other criteria, such as primary wear, are more subjective and require experience to achieve accuracy (Wight et al. 1967); (3) approximately 25 students, none of whom had previous experience with Mourning Dove aging techniques, were involved in this project. We felt that the simplest, least subjective technique would be most reliable.

Few accounts of the percent of juveniles in the Mourning Dove harvest in

Tennessee have been published. For the 5 years 1950-1954, juveniles made up 57.3-83.0% (average = 74.7%) of the September harvest in Tennessee (Southeastern Association of Game and Fish Commissioners 1957); the technique used for aging Mourning Doves in the 1950-1954 study was the same as in our study. Juveniles made up 78.9% of the September harvest in 1967-1969 and 77.6% of the harvest in 1970-1971 (Hayne 1975); during these years juveniles were identified by examination of both primary coverts and primaries. The percent of juveniles identified (71.8) is similar to that found in the earlier studies but insufficient data are available for statistical comparisons. We found significantly different percents of juveniles in the annual harvests of 1988-1990. The differences in the percent of juveniles harvested each of the three years was small and we suspect such differences may not have been biologically important. However, some counties had consistently higher percentages of juveniles than other counties. For example, juveniles made up more than 80% of the sample each year in Obion County but less than 70% each year in Hardin County (Table 1).

The primaries of Mourning Doves are dropped at an average interval of 16 days (Sadler 1970), but there is considerable variation. This results in reduced accuracy in postdating the hatching dates for juveniles that have molted more than half of their primaries. This variation is also the reason for the varying length of the time intervals (5-25 days) in Figures 1-4.

Based on our data (Figures 1-4), the peak of nesting occurred in late May and early June. This differs from the conclusions of Geissler et al. (1987, Fig. 4) based on their survey of nests in the southeastern states or the conclusions of Monk (1949) based only on Tennessee nests; both of these studies found more nests in April than our data indicate. Our results may not accurately portray the number of young fledged in the early part of the nesting season for two reasons: (1) some of the Mourning Doves hatched in March and April may have completed their molt by September and would have been classed as adults in our analysis; (2) Mourning Doves fledged early in the year have had longer exposure to predators, diseases, accidents and other mortality factors. We recognize that our data do not represent the actual proportions of young *produced* during the different parts of the nesting season, but, instead, represent the number of young *surviving* until September. Our data result from a combination of the number of young fledged *and* the effects of mortality on these young prior to September. Because our data were collected during 1-5 September, we were not able to address the question of how many, if any, Mourning Doves fledged after the hunting season began on 1 September.

One of the few studies that has compared observed nesting patterns of Mourning Doves with nesting phenologies based on examination of wing molt is that of Morrow et al. (1985). They located nests and documented events and, in the same area, operated live-capture traps where molt patterns of captured Mourning Doves were noted. In one of the two years of their study the nesting phenology based on the timing of primary molt did coincide with the nesting peak determined by observation of nests. In the other year of their study the reconstructed phenology did not agree with the observed nest data. As a result,

Morrow et al. (1985) advise caution in the use of molt data to determine timing and peaks of nesting. Morrow et al. (1985) noted that one factor affecting their results was the change in capture rates of Mourning Doves over a period of time. Our data were obtained from harvested Mourning Doves and would not be affected by trapping bias. We suspect, without supporting data, that nesting phenologies based on molt patterns of large numbers of Mourning Doves harvested over a brief span of time would be more reliable than data obtained from trapped birds.

One of our original goals was to determine the effects of weather on nestling production and survival and, consequently, on the percent composition of the harvest. While weather patterns will no doubt have effects, both on a short-term and long-term basis, our data are insufficient to permit any conclusions. Several factors make correlations of Mourning Dove harvest data and weather difficult. Mourning Doves have such a long nesting season that adverse weather in one part of the season may be compensated for in other parts of the season. Localized weather factors may be important to nesting Mourning Doves. For example, during July 1988 over 250 mm of rain fell at Jackson, but only 137 mm fell at Martin (U.S. Department Commerce 1988). Severe thunderstorms with gusty winds and heavy rain might destroy nestlings or fledglings (Monk 1949) in one area while similar aged Mourning Doves a few miles away might not be exposed to such conditions. The wide geographic range of the species and the extended nesting season would lead to the conclusion that Mourning Doves are tolerant of a wide variety of environmental conditions. We suspect, however, that weather does affect Mourning Dove nesting success in Tennessee. Documentation of these effects will probably best be accomplished by a detailed study of nests rather than, as in our study, determining ages of harvested juveniles. We feel that the use of harvest data can be useful for determining the success of a nesting season (i.e., production and survival of young). However, these data should be used cautiously when investigators attempt to determine causes for variations in the harvest data. Future studies of this type might be more informative if both coverts and primaries are used for age determinations, if only one or two persons are involved in age determinations, and if large numbers of wings are collected from small geographical areas where local weather conditions are well documented. Ideally, a study of this type would be conducted simultaneously with an intensive nest study.

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Table 1. Distribution by year and county of Mourning Dove wings collected and percent of harvest composed of juveniles.

	No. wings collected			% Juveniles		
County	1988	1989	1990	1988	1989	1990
Benton	96	19	-	59.4	52.6	-
Carroll	177	52	215	63.3	84.6	76.3
Crockett	74	104	76	73.0	75.0	65.8
Fayette	-	-	148	-	-	78.4
Gibson	119	-	175	68.9	-	85.1
Hardin	172	300	111	68.6	66.3	64.9
Henderson	163	-	-	64.4	-	-
Henry	633	636	255	73.9	70.4	77.6
Lauderdale	-	15	-	-	66.7	-
Madison	-	68	-	-	79.4	-
McNairy	53	-	212	62.3	-	68.4
Obion	238	29	247	82.8	89.7	81.8
Shelby	37	-	-	75.7	-	-
Tipton	39	-	-	64.1	-	-
Weakley	259	-	379	71.0	-	76.0
Unknown	365	-	-	57.3	-	-
	2425	1223	1818	68.9	71.0	76.1

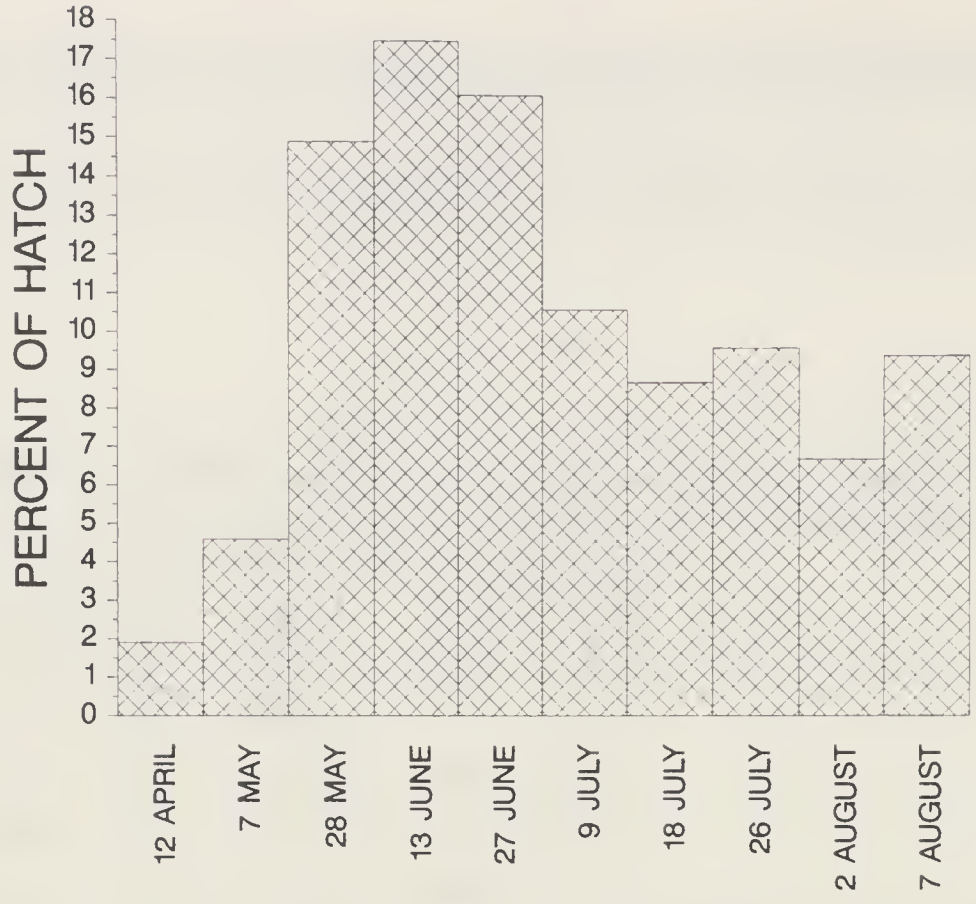


Figure 1. Hatching dates of juvenile Mourning Doves harvested 1-5 September 1988. Each date on the horizontal axis represents an interval mid-point.

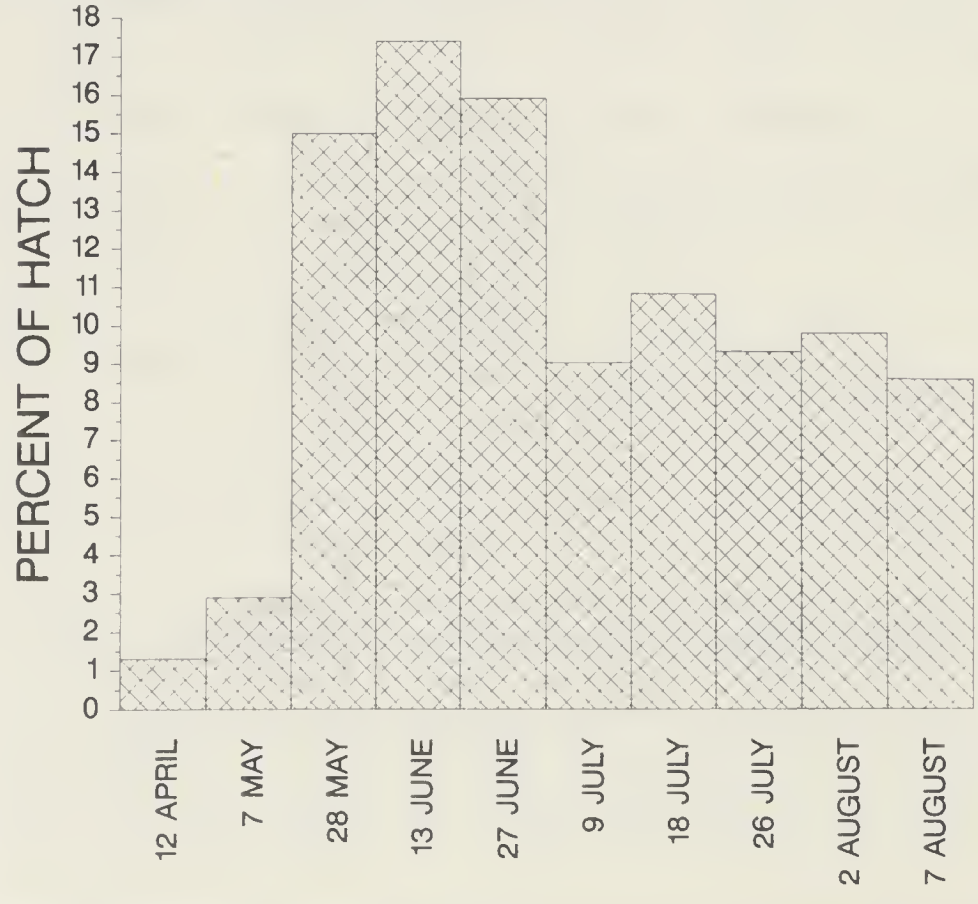


Figure 2. Hatching dates of juvenile Morning Doves harvested 1-5 September 1989. Each date on the horizontal axis represents an interval mid-point.

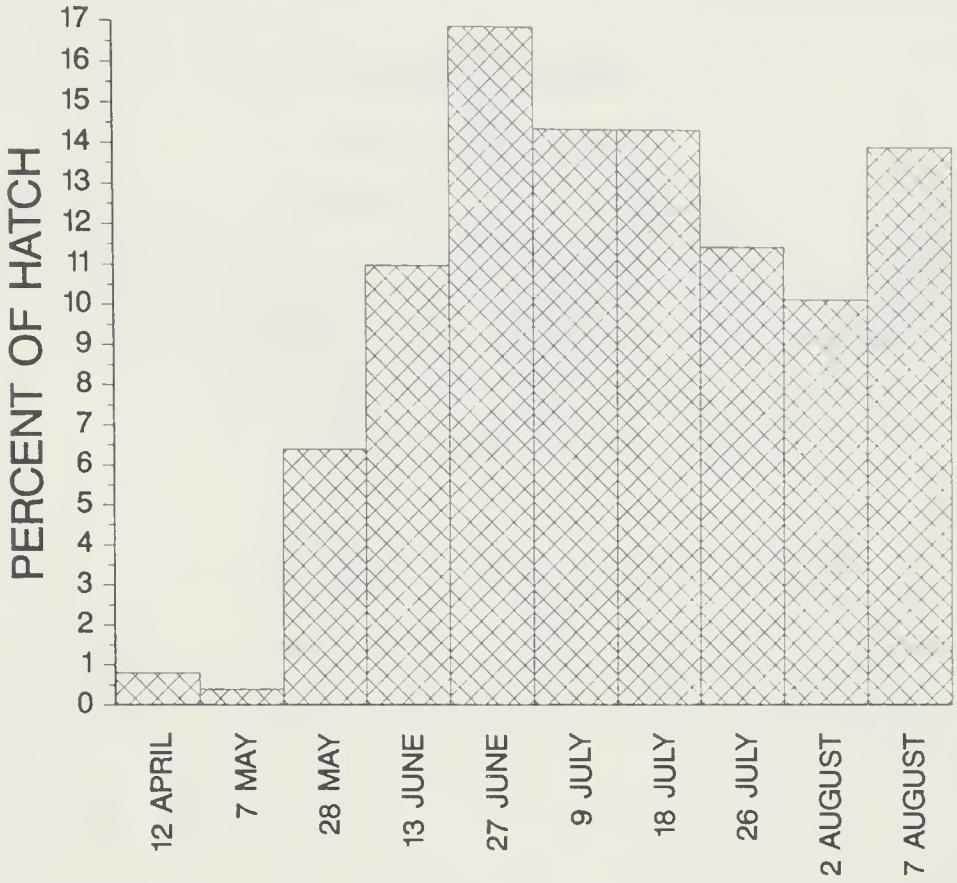


Figure 3. Hatching dates of juvenile Morning Doves harvested 1-5 September 1990. Each date on the horizonial axis represents an interval mid-point.

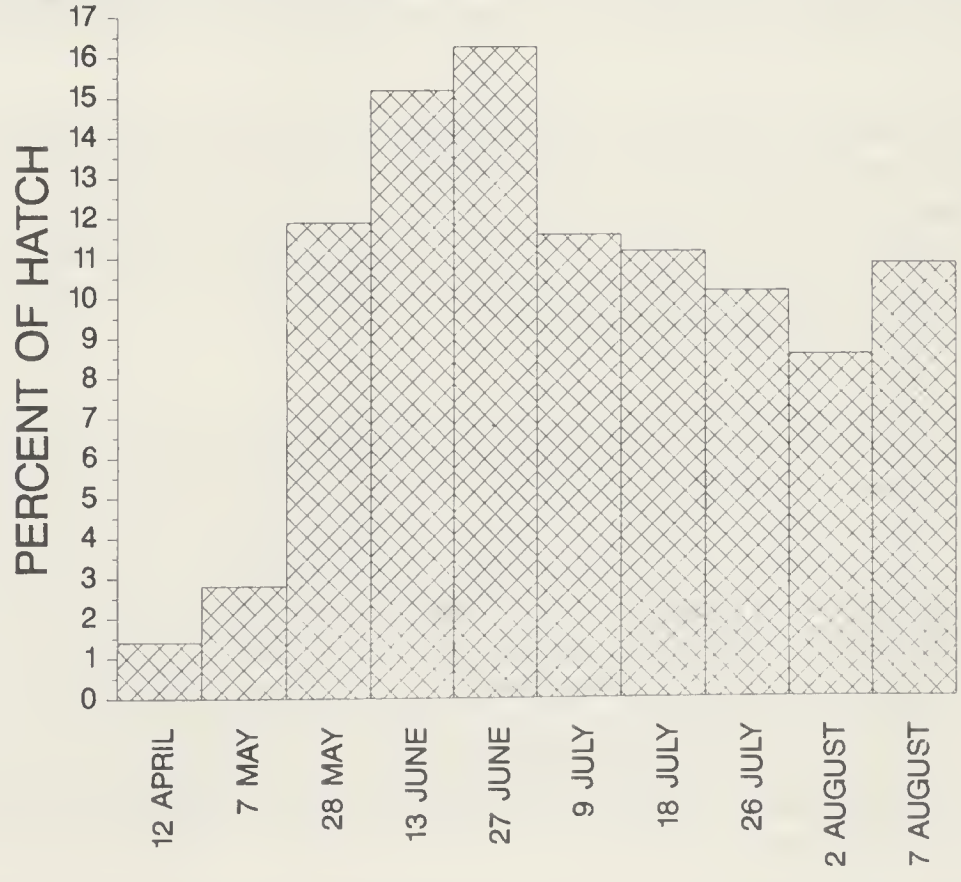
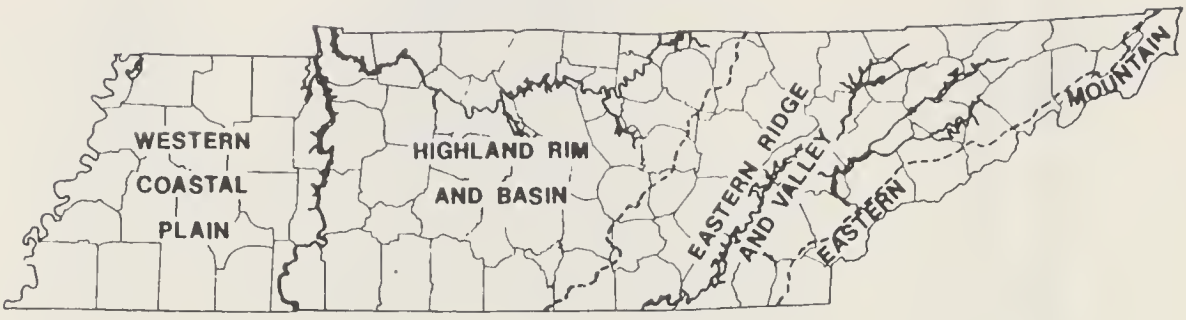


Figure 4. Hatching dates of juvenile Morning Doves harvested 1-5 September 1988-1990. Each date on the horizontal axis represents an interval mid-point.

The Migrant, 62(3):78-88, 1991.

THE SEASON

ROBERT P. FORD, Editor



WINTER: 1 DECEMBER 1990 - 28 FEBRUARY 1991

The weather was unusually mild across Tennessee this winter season; all regions reported above average temperatures and variable precipitation rates. The occurrence of birds this season depicted the mild weather patterns. Winter irruptives were generally scarce throughout the state, and several species that normally occur in summer, lingered into or stayed the winter season. Rareties this winter include a variety of gulls, with an especially wide distribution of Glaucous Gulls, two species of hummingbird, and state record Black-headed Grosbeak. Please take note that many of the gull observations reported here are currently still under consideration by the Tennessee Bird Records Committee. The details of these and other observations are detailed in the regional accounts below.

Abbreviations used in the following report include: ad - adult; CBC - Christmas Bird Count; EOP - end of period; ers - earliest reported sighting; et al - and others; f - female; m - male; max - maximum number of individuals reported from 1 county in 1 day; m.o.b. - many observers; NWR - National Wildlife Refuge; TBRC-Tenn. Bird Records Committee; WRRS - Winter Roadside Raptor Survey;. * - record has been documented.

WESTERN COASTAL PLAIN - The winter season, in contrast to the bitter cold of last year, was mild and favorable for observing several county and state record species. American White Pelican, California Gull, Thayer's Gull, Lesser Black-backed Gull and Glaucous Gull occured at Pickwick Dam in Hardin County. A Surf Scoter was a first for Shelby County and Smith's Longspurs were the unusual recurrent winter visitors. A Harris' Sparrow was a welcomed guest, the first for several winters. Coverage of west Tennessee was enhanced by the consistent reporting of dependable observers, especially in the outland areas. In several localities, specifically in residential areas in Shelby County, the number of House Finches increased since last year. Specific locations of all the sightings of waterfowl and forest birds have been omitted to allow space for a more complete listing of birds.

Loon - Falcon: Red-throated Loon: 26 Feb (1) BRF (Paul Lehman, Shawnee

1991 Midwinter Eagle Count
Tennessee
Compiled by Bill Yambert
Tennessee Wildlife Resources Agency

Location	Date	Organi-zation	Bald Eagle AD	IMM	UNK	TTL	Golden Eagle AD	IMM	TTL	Grand Total
Reelfoot Lake (Lake Co.)	1/15	FWS	45	17		62				62
Reelfoot Lake (Obion Co.)	1/15	FWS	24	16		40				40
Open Lake (Lauderdale Co.)	1/15	TWRA FWS	2		2					2
Hatchie River (Haywood Co.)	1/11	FWS	2	1		3		1	1	4
Brandywine Island (Shelby Co.)	1/14	TWRA	1			1				1
Mississippi River Total			**74**	**34**		**108**		**1**	**1**	**109**
Kentucky Lake	1/13	FWS	18	10		28				
(Stewart Co.)	1/14	TVA	26	14		40				
Cross Creeks NWR	1/11	FWS	1	1		2	1		1	3
Pickwick Lake	1/12	TWRA	1	4		5				
Kentucky/Pickwick/Barkley Reservoir Total			**46**	**29**		**75**	**1**		**1**	**76**
Old Hickory Reservoir	1/12	DOC	1		1					1
Normandy Reservoir	1/13	TOS	1		1					1
Center Hill Reservoir	1/14	TOS	3	1		4				4
Cordell Hull Reservoir	1/11	TWRA TOS COE	2			2				2
Woods Reservoir	1/11	TOS	2		2					2
Dale Hollow Reservoir	1/11	COE	44	8		52				
Central Tennessee Total			**53**	**9**		**62**				**62**
Chickamauga Reservoir	1/10	TWRA TVA	13	2		15				15
Tims Ford Reservoir	1/14	TOS	1			1				1
Sequatchie Valley	1/9	TWRA	1			1				1
Nickajack Reservoir (Raccoon Mtn.)	1/12	TOS	1	1		2				2
Watts Bar Reservoir	1/15	TVA	16	1		17				17
Tellico Reservoir	1/5	PC	2			2				2
Ft. Loudon (Knox Co.)	1/8	TWRA	2		1	3				3
Ft. Loudon (Sevier Co.)	1/4	PC	2	1		3				3
Douglas Reservoir	1/9	TVA	4	1		5				5
Cherokee Reservoir	1/12	TVA-DOC	1			1				1
Norris Reservoir	1/17	TVA-PC	3			3				3
East Tennessee Total			**46**	**6**	**1**	**53**				**53**
Tennessee's Grand Total			**219**	**80**	**1**	**298**	**1**	**1**		**300**

DOC: Tenn. Dept. Conservation
FWS: Fish and Wildlife Service
TOS: Tenn. Ornithological Society
PC: Private Citizens Report
TVA: Tenn. Valley Authority
COE: Corps of Engineers
TWRA: Tennessee Wildlife Resource Agency

Finnegan). Horned Grebe: 7 Dec (1) REL, OBC (WGC); 29 Dec (7) PSP (DJS, m.o.b.); 17 Jan (1) REL, LKC (MAG). American White Pelican: 29 Dec (1 im*) PSP (DJS, m.o.b.), first confirmed for county even though local fishermen have reported them in the past. Double-crested Cormorant: 1 Dec (25) REL (BRF); 1 Dec (1) HWR (MAG, SDL); 7 Dec (35) REL, OBC (WGC); 14 Dec (18) Is 13 (WGC); 15 Dec (1) LWR (DJS); 16 Dec (30) Mem CBC (MTOS); 18 Dec (108) REL CBC (MAG m.o.b.); 29 Dec (1) Savannah CBC (DJS, m.o.b.), 17-31 Jan (5) REL, LKC (MAG); 1/16 Feb (5) REL, LKC (WGC). Tundra Swan: 8/16 Dec - 21 Jan (4, 1ad 3 im) LWR (WGC, JRW, Willis Wheeler, m.o.b.). Canada Goose: 2/3 Jan (51,000) REL, OBC, Lake Isom, LKC (6,500) peak number; Feb - EOP (less than 400) REL and Lake Isom (USFWS, MAG). Greater White-fronted Goose: 16 Jan (2 ad), REL, OBC (MAG); 2 Feb (ad) BRF, 16 Feb (1 ad) DYC (WGC); 13 Feb (9 ad) BRF (TJW); 28 Feb (5) BRF (JBC). Black Duck: 2/3 Jan (1,000) REL, OBC, (500) Lake Isom (USFWS, MAG). Mallard: 11 Dec (142,000) REL, OBC, 12 Dec (18,000) Lake Isom, LKC (USFWS, MAG), peak number. GREATER SCAUP: 29 Dec (2*) PSP (DJS, m.o.b.); 17 Jan (2 m) REL, LKC (MAG).SURF SCOTER: 27 Jan (1*) Robco Lake (GBB, Ivon Beaver), first SBC record. Common Merganser: 13 Feb (10) PAP (TJW). Red-breastedMerganser: 29 Dec (2) PSP (DJS, m.o.b.); 12/13 Jan (6) REL, LKC, (GLI, RLI, Judy Stewart, Baird Stewart). Ruddy Duck: 1 Dec (2,000) REL, LKC (BRF); 15 Dec (500) Open Lake, LDC (DJS); 18 Dec (6,610) REL CBC (MAG, m.o.b.).

Selected species from the Winter Raptor Roadside Survey (WRRS) are included in this report. Black Vulture: 20 Jan (4) WRRS, FYC (JEW, MGW); 23 Jan (13) WRRS, HDC (VBR, CHB, SSL, NMS, HBD). Turkey Vulture: 13 Jan (9) WRRS, HYC (JBC, LBC); 20 Jan (17) WRRS, FYC (JEW, MGW); 23 Jan (37) WRRS, HDC (VBR, CHB, NMS, HBD). Bald Eagle: 15 Dec (3 ad, 1 im) Open Lake, LDC (DJS); 18 Dec (27 ad, 17 im) REL, CBC (m.o.b.) adult carrying large stick (DDP, DPB, Don Doster); 29 Dec (1 ad 2 im) Savannah CBC (DJS, m.o.b.); 14 Jan (2) BRF (JBC); 24 Jan (1 ad) Airpark Inn, REL, (MGW) carrying nesting material; 4 Feb (176, 107 ad, 69 im) Reelfoot Lake, Reelfoot NWR, Lake Isom, and Mississippi River area (MAG), aerial count; 12 Feb (pair on nest) Lake Isom NWR; 14 Feb (1 im) Union City, OBC (MAG); 22 Feb (2) DYC (WGC). Sharp-shinned Hawk: 16 Dec (3) MEM, CBS (MTOS); 29 Dec (1) Savannah CBC (DJS, m.o.b.); 16 Jan (1) northeast LDC (MGW, CHB); 2 Feb (1) DYC (WGC); 9 Feb (1) GBC (MAG, SDL). Cooper's Hawk: 1 Dec (1) sw of Bells, HYC (MAG, SDL); 16 Dec (1) MEM CBC (MTOS); 18 Dec (1) REL, CBC (BBC, LCC); 29 Dec (1) Savannah CBS (DJS, m.o.b.); 29 Dec (1) Savannah CBS (DJS, m.o.b.); 14 Jan/4 Feb (2) BRF (JBC); 9 Feb (1) GBC (MAG, SDL); 10 Feb/13 Feb (1) PEF (VBR, MGW). Red-shouldered Hawk: 1 Dec (1) REL, LKC (BRF); 16 Dec (1) MEM, CBC (MTOS); 18 Dec (18) REL, CBC (m.o.b.); 29 Dec (1) Savannah CBC (Don Doster); 11-13 Jan (1) REL, LKC (RLI, GLI, Judy Stewart, Baird Steward); 14/18 Jan (2) CGP, MDC (HSH, Joyce Harsson); 14 Jan/28 Feb (1) BRF (JBC). Rough-legged Hawk: 8 Dec (1) LWR (MAG); 26 Dec - EOP (1) TEC (MLG, TAF). American Kestrel: 1 Dec (4) REL, LKC (BRF); 13 Jan (19) WRRS, HYC (JBC, LBC); 20 Jan (8) WRRS, FYC (MGW, JEW); 2 Feb (4) WRRS, DYC (Allen Hight, HSH); 14 Feb (7) HYC (JBC); 16 Feb (7) WRRS, TIP (MGW, CHB). Merlin: 21 Jan (1) MEM (GLI, RLI). Peregrine Falcon: 26 Dec (1) MEM (Tim Davis); 14 Feb (1) Long Point Unit, REL, LKC (MAG).

Plover-Gull: Lesser Golden Plover: 9 Dec (1) TEC (MGW), late date. Greater

Yellowlegs: 7 Dec (1) LKC, 9/14 Dec (1) DYC (WGC). Lesser Yellowlegs: 9 Dec (1) TEC (BBC, LCC); 22 Feb (1) Phillipy Pits, LKC, 24/27 Feb (1) DYC (WGC). Western Sandpiper: 16 Dec (2*) MEM CBC, TEC (MGW, DPB,RWP, MLG,TAF). Least Sandpiper: 6 Jan (2) TEC (MLG, TAF). Pectoral Sandpiper: 9 Dec (1) TEC (MGW). Dunlin: 7 Dec (4) LKC, 9/11/14 Dec (2) DYC (WGC); 16 Dec (13) MEM CBC, TEC (DPB, RWP, MGW, TAF, MLG); 26 Dec (7) TEC (MLG, TAF). Common Snipe: 11 Dec (105) LWR (WGC); 16 Dec (120) MEM CBS (MTOS); 18 Dec (4) REL CBC (MAG, m.o.b.). American Woodcock: 18 Dec (1) REL CBC (MAG, m.o.b.); 29 Dec (2) Savannah CBC (DJS, m.o.b.); 29 Dec (1) Jackson CBC, (JTOS); 9 Feb (1) Tigrett WMA, DYC (WGC); 16 Feb (4+) northeast MEM (MTOS). Bonaparte's Gull: 14 Dec (300+) Tiptonville Sewage Lagoons, LKC, (WGC); 18 Dec (16) REL CBC (MAG, m.o.b.); 29 Dec - EOP (550 - 800) PSP (DJS, m.o.b.) new high for area; 17 Jan (106) REL, LKC (MAG). Ring-billed Gull: 14 Dec (300+) Is 13 (WGC); 16 Dec (37) MEM CBC (MTOS); 18 Dec (593) REL CBC (MAG, m.o.b.); 22 Dec (1) Humboldt, GBC (MAG); 29 Dec - EOP (550-800) PSP (DJS, m.o.b.) new high for area; 12 Jan (50+) Whites Lake, DYC (MAG, RPF, SDL); 17 Jan/15 Feb (500+/750) REL, LKC (MAG). CALIFORNIA GULL: 28 Dec - 12 Jan (1*, 1st year) PSP (DJS, Jeff Garner, m.o.b.) first state record pending of TBRC acceptance. Herring Gull: 8 Dec (6) LWR (MAG); 16 Dec (5) MEM CBC (MTOS); 18 Dec (13) REL CBC (MAG, m.o.b.); 29 Dec - EOP (37-67) PSP (DJS, m.o.b.) new high for area; 29 Dec (1) Jackson CBC (JTOS); 17 Jan/15 Feb (14/61) REL, LKC (MAG). THAYER'S GULL: 28/29 Dec (1*, 1st year) PSP (DJS, MCT, Wallace Todd), first state record pending of TBRC acceptance. LESSER BLACK-BACKED GULL: 28/29 Dec (2*, 1st and 2nd year) PSP (DJS), second record for this county pending of TBRC acceptance. GLAUCOUS GULL: 6 Jan - 13 Jan (1*, 1st year) PSP (DJS, m.o.b.), first for this location. Great Black-backed Gull: 29 Dec/12 Jan (1*, 1st year) PSP (DJS), first for this county. *Ed. note:* state record gull observations as above should be published as a Roundtable Note after TBRC decision.

Owl - warbler: Barn Owl: 16 Dec (1) MEM CBC, TEC (MLG, TAF); 28 Dec (1) Liberty, WKC (MAG). Great Horned Owl: 13 Feb (2 ad 2 im) PEF (VBR, Knox Martin). Short-eared Owl: 1 Nov - 8 Dec (4) Savannah Bottoms (DJS) probably present thru 20 Dec. when high water prevented further checking. None were found in early Feb (DJS); 9 Dec (15) TEC (MGW, JEW); 16 Dec (2) TEC (MLG, TAF); 18 Dec (3) REL CBC (EKW, m.o.b.); 26 Dec, 6 Jan (5-6) TEC (MLG, TAF); 26 Jan (6) TEC (WBF, Skip Fowler); 2 Feb (2) BRF (WGC). Fish Crow: 17 Dec (3) REL, LKC; 22 Jan (1) REL, OBC (MAG); 3 Feb (500+) south DYC (BBC). Red-breasted Nuthatch: 16 Dec (4) MEM CBC (MTOS); 18 (1) REL CBC (Donald Doster, m.o.b.); 22 Dec (1) Savannah CBC (DJS, m.o.b.); 6 Jan - EOP (4-6) PEF (MGW, JEW); 17 Jan (2) REL, LKC (MAG).

Wren-Grosbeak: 18 Dec (1) REL CBC, OBC (DDP, DPB, Don Doster); 11 Jan (1) REL, LKC (Judy Stewart, Baird Stewart). Winter Wren: 1 Dec (4) REL, LKC (BRF); 16 Dec (8) MEM CBC (MTOS); 18 Dec (10) REL CBC, OBC (MAG, m.o.b.); 29 Dec (1) Savannah CBC (DJS, m.o.b.); 14/18 Jan (3/1) CGP MDC (HSH, Allen Hight, Joyce Harsson); 4 Feb (1) BRF (JBC). Sedge Wren: 16 Wren (1) PEF, MEM CBC (SNM, NPM). American Pipit: 8 Dec (4) LWR (MAG); 16 Dec (3) MEM CBC, TEC (MTOS); 26 Dec (40+) TEC (MLG, TAF); 19 Jan (3) PEF (MLG, RWP, MGW); 16 Feb (3) Ballard Slough, TIC (CHB, MGW). Loggerhead Shrike: 1 Dec (2) REL, LKC (BRF); 13 Jan (2) WRRS, HYC (JBC, LBC); 20 Jan (5) WRRS, FYC (JEW,

MGW); 12 Feb (0) WRRS, DYC (Allen Hight, HSH); 16 Feb (0) WRRS, TIP (CHB, MGW). Pine Warbler: 29 Dec (14) Savannah CBC (DJS, m.o.b.); 1-2 observed at several feeders in east SBC; 28 Dec - EOP (3-5) PEF (JEW, MGW). American Tree Sparrow: 16 Dec (1) MEM CBC (RLI, GLI); 18 Dec (27) REL CBC (MAG, m.o.b.); 28 Dec (3) Dresden, WEC (MAG, Donald Doster). Chipping Sparrow: 8 Dec (8) PSP (DJS). Vesper Sparrow: 16 Dec (2) MEM CBC, PEF (MTOS). LeConte's Sparrow: 1 Nov - 8 Dec (1-6) Savannah Bottoms, probably present until 20 Dec when high water prevented further checking. The birds were not present in early Feb (DJS); 16 Dec (1) MEM CBC, PEF (BEB). Fox Sparrow: 16 Dec (78) MEM, CBC (MTOS); 29 Dec (1) Savannah CBC (DJS, m.o.b.); 11 Jan (1) REL, LKC (Judy Stewart, Baird Stewart); 21 Jan (3 flocks of 5-6 each) WRRS, FYC (MGW, JEW). White-crowned Sparrow: 16 Dec (116) MEM CBC (MTOS); 23 Dec - 7 Jan (34-260) Mt. Orange, GBC (MAG), at feeder, this species has been observed in small flocks on all field trips. HARRIS' SPARROW: 16/20/21 Jan (1 im) north-central SBC (CHB, NMS, VBR, GBB, RWP, MLG). Lapland Longspur: 23/26 Dec (55+) Baker Airfield, SBC (DDP, DPB, MGW, m.o.b.). SMITH'S LONGSPUR: 16 Dec (2) PEF, MEM CBC (m.o.b.); 20/23 Dec (1) Baker Air Field SBC (DDP, MLG, TAF, MGW, DPB); 26 Dec (8) PEF (MLG, TAF); 10 Feb (2) PEF (MGW, JEW). Rusty Blackbird: 8 Dec (12) LWR (MAG); 16 Dec (479) Mem, CBC (MTOS); 29 Dec (20) Savannah CBC (DJS, m.o.b.); 28 Dec - EOP (7-150) PEF (MGW, JEW); 12/13 Jan (1) REL, LKC (RLI, GLI, Judy Stewart, Baird Stewart); 17 Jan (21) REL, LKC (MAG); 27 Jan (41) TEC (MGW, VBR, CHB). Brewer's Blackbird: 8 Dec (2) LWR (MAG); 15 Dec (3) Ripley (DJS); 30 Dec (2) Horse Creek, HDC (DJS); 26 Dec (3 m, 2 f) TEC; 5 Jan (10) PEF (MLG, TAF). Purple Finch: 24 Dec - 12 Jan (3-6) east of Savannah (DJS) only one feeding station reporting this species; 10 Feb (1) PEF (MGW, JEW); 22 Dec - 28 Feb (1-16) MDC (Allen Hight, HSH); mid-Dec - EOP (1) MEM (SNM). House Finch: 1 Nov - EOP, very common at feeders and in the field flocks up to 200+ at feeders and up to 150+ in the field; Jan (1705 banded) MEM (BBC) in contrast to the 2600 banded in 1990. Pine Siskin: 29 Dec (76) Savannah CBC (DJS, m.o.b.). Evening Grosbeak: 26 Dec (3) Millington, SBC (Farris Myers).

Locations: BRF - Britton Ford, Tennessee NWR, Henry Co.; CBC - Christmas Bird Count; DYC - Dyer Co.; GBC - Gibson Co.; HAC - Hardeman Co.; HDC - Hardin Co.; Is 13 - Island 13, Joe Echles Towhead, Lake Co.; LHWR - Lower Hatchie Wildlife Refuge, Lauderdale Co.; LKC - Lake Co.; MDC - Madison Co.; MEM - Memphis, Shelby Co.; OBC - Obion Co.; PEF - Penal Farm, Shelby Co.; PLS - Paris Landing State Park, Hardin Co.; PSP - Pickwick State Park, Henry Co.; REL - Reelfoot Lake, Obion and Lake Cos.; SFP - Shelby Forest State Park, Shelby Co.; TEC - The EARTH Complex, Memphis, Shelby Co.; TIC - Tipton Co.; WKC - Weakley Co.

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HIGHLAND RIM AND BASIN REGION - Precipitation in Nashville for December was 10.76 in. (6.13 above normal), 2.92 in. January (1.57 below normal), and 5.44 in February (1.41 above normal). There was less than 1 inch of snow measured for the entire period. Temperatures were above normal for the period. Rarities in the region include three Glaucous Gulls, one in Rutherford Co., a second bird observed at Woods Reservoir and a third at Pickwick Dam. A

Rufous Hummingbird that was present for part of the Fall period lingered at Manchester until early February. A Black-headed Grosbeak frequented a feeder at Sewanee. A small number of Tree Sparrows was reported from Fort Campbell. Irruptive species were generally scarce.

Loon-Falcon Common Loon: 3 Feb (38) PPL, DVC (MAG), max. Horned Grebe: 3 Feb (125) PPL, DVC (MAG), max. Pied-billed Grebe: 3 Feb. (14) PPL, DVC (MAG), max. Great Egret: 28 Nov - 24 Dec (1) DHL, SUC (LFK, Richard Newton), new Nashville Area late date. Greater White-fronted Goose: 5 Jan (2) Shelton Farm, RUC (TJW), only report.Snow Goose: 1 Dec (5 blue color morph) WDR (RWL); 29 Dec (1 blue color morph, 1 white color morph) WDR (RWL, MDH); 11 Feb (1 white color morph) Bells Bend, DVC (ATT). Greater Scaup: 29 Dec (7) AEDC (LHD, KHD); 19 Jan (11) AEDC (DLD), max. White-winged Scoter: 17 Nov - 10 Feb (1) RDL (NTOS); 5 Jan (10) WDR (DLD), max. Red-breasted Merganser: 21 Dec (140) WDR (DLD), max. Osprey: 5 Jan (3) Boxwell Boy Scout Reservation, WLC (Anna M. Parker), only report. Bald Eagle: 16 Dec (1 ad) Tims Ford Res., FKC (JHM); 24 Dec - 11 Jan (2 ad) WDR (RWL, MDH); 13 Jan (1) Normandy Res., CFC (MDH); 14 Jan (1 ad) Tims Ford Res., FKC. Northern Harrier: 8 Jan (3) Fort Campbell, MTC (ANH), max. Rough-legged Hawk: 8 Jan (1) Fort Campbell, MTC (AHH), only report. Short-eared Owl: 8 Jan (4) Fort Campbell, MTC (AHH), only report. American Kestrel: 23 Feb (1) Sparta, White Co. (DFV), this female kestrel was trapped and found to be already banded (band # 1373-55199), banding office records indicate that it was banded 2 Feb 1990 in Ohio.

Turkey - Lark: Wild Turkey: 1 Jan (8) AEDC (DLD); 28 Feb (1 f) Knob Creek Rd. MUC (Nancy B. Scott), band observed on bird's leg. Sandhill Crane: 16 Nov (8) Percy Priest WMA, RUC (Ray Bankston), feeding on newly seeded mud flats; 24 Dec (80) Hillsboro, CFC (FNM); 27 Dec (37) Old Hickory WMA, WLC (Bob Patton); 8 Jan (54) Hillsboro, CFC (ELR), observed on ground; 8 Jan (6) Georgia Crossing, FKC (JLI), observed on ground; 9/10 Jan (80) Hillsboro, CFC (FNM); 12 Jan (123) Hillsboro, CFC (ECC), observed on ground; 19 Jan (200) Hillsboro, CFC (RWL); 21 Jan (50) Manchester, CFC (QNS); 23 Jan (3) Old Hickory WMA, WLC (Ben Layton); 21 Feb (72) BAH (RWS); 24 Feb (250) BAH (RWS), max. Bonaparte's Gull: 12 Jan (100) WDR (RWL), max. GLAUCOUS GULL: 5 Jan (1 im*) WDR (RWL); 7 Jan (1 im*) Middle Point Landfill, RUC (TJW). RUFOUS HUMMINGBIRD; 10 Nov - 9 Feb (1 ph*) Manchester, CFC (DLD), frequented feeder for much of period. Horned Lark: 16 Jan - EOP (25) North Montgomery Co. (AHH), only report.

Nuthatch - Grosbeak: Red-breasted Nuthatch: 1 Dec - EOP (2) Tullahoma, CFC (RWL); 29 Dec (1) WDR (RWL); 17 Feb (1) Tullahoma, CFC (CWP). Bewick's Wren: 5 Jan (1) Shelton Farm, RUC (TRW), onlyreport. Eastern Bluebird: 12 Feb (4) Knob Creek Rd, MUC (William H. Scott), bluebirds observed building nests in nest boxes. American Robin : 13 Feb - EOP (1 ad) 2703 Woodlawn Dr., Nashville DVC (Deborah A. Beazley), adult observed building nest 13 Feb and 1st egg laid on 26 Feb, 3rd and last egg laid on 27 Feb. American Pipit: 27 Jan - 1 Feb (11) Ovoca Lake, CFC (MDH), only report. Pine Warbler: 23 Dec - 22 Feb (1) Hendersonville, SUC (Richard Newton), frequented feeding area for much of period; 29 Dec (1) WDR (RWL). BLACK-HEADED GROSBEAK: 3 Dec - 8 Dec (1*) Sewanee, FKC (JLI, RWL, Harry Yeatman), this bird was first observed as an

injured wild bird feeding at feeding station and was eventually captured on 8 Dec.

Sparrow - Grosbeak: AMERICAN TREE SPARROW: 8 Jan (4) Fort Campbell, MTC (AHH), only report. Chipping Sparrow: 29 Dec (1) WDR (MES, LDW). Vesper Sparrow: 29 Dec (2) AEDC airfield, CFC (DLD, LHD). Lark Sparrow: 5 Jan (1) Kimbro Rd, RUC (TJW), 2nd Nashville Area winter record. Purple Finch: observed throughout region but in small numbers. House Finch: 30 Dec (1) Old Charlotte Pike, DVC (DFV), trapped at a feeding station and found to be previously banded (band # 2081-92658), banding office records indicated it was banded near Landess, Indiana on 11 Aug 1990. Pine Siskin: present in region in fair numbers during early part of period but numbers declined as period progressed; 89 siskins were banded at a feeding station in Nashville, DVC during the period (DFV). Evening Grosbeak: 22 Dec (1) Columbia, MUC (Larry F. Thomas); 23 Dec (1 f) Lawrenceburg, Lawrence Co. (Wylie Willis); 24 Dec (7) Manchester, CFC (DLD), max; 27 Dec (1) Manchester, CFC (DLD); note all reported observations of this species occurred during the last week in Dec.

Locations: AEDC - Arnold Engineering Development Center, Coffee Co.; BAH - Barnes Hollow, Putnam Co.; CFC - Coffee Co.; DVC - Davidson Co.; FKL - Franklin Co.; MTC - Montgomery Co.; MUC - Maury Co.; OHL - Old Hickory Lake; PPL - Percy Priest Lake; RDL - Radnor Lake, Davidson Co.; RUC - Rutherford Co.; SUC - Sumner Co.; WDR - Woods Reservoir, Franklin Co.; WLC - Wilson Co.; WMA - Wildlife Management Area.

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EASTERN RIDGE AND VALLEY REGION - This winter was mild and rainy. Temperatures throughout the season and region were well above normal. The Johnson City area had the "mildest Dec. on record," just one year after its coldest. The lone true cold snap was a brief one in late February. The northeast portion of the region received just two very light and short-lived snowfalls in late February, and a couple of flurries at Christmas - the least amount that I can remember ever getting. Rainfall was heavy in December and February, but only about half the average in January. Seasonal totals ranged from slightly above average in Johnson City (+1.8 in) to well above average in Chattanooga (+6.1 in).

The mild conditions undoubtedly allowed several species to linger - Green-backed Herons, Forster's Tern, House Wrens, gnatcatcher, warblers and Chipping Sparrows. Warm weather may also have contributed to an early nesting of Barn Owl. The shortage of boreal irruptives probably meant adequate food sources further north. Ken Dubke and his legion of crane watchers witnessed "the most impressive number of Sandhill Cranes ever documented wintering, migrating over or stopping to roost and feed in Tennessee." Several rarities, with a noticeable western flavor, appeared. Among these were two first state records and a second state record. Rufous Hummingbird was found in the region for the third consecutive winter. Other interesting sightings are detailed below.

Loon- Goose: Common Loon: 15 wintered on CHL (KHD); 2 wintered on BOL (RLK); 25 Jan (10) Cherokee Lake, Grainger & Hamblen Cos. (RLK), Pied-billed Grebe: 5 Jan (100) CHL (KHD, LHD), max. Horned Grebe: 1 Feb (38) CHL (KHD,

LHD), max. RED-NECKED GREBE: 20 Jan - 10 Feb (1-2) CHL (AMJ, C. Del Blum, LHD *et al.*), 7th CHA area record. Double-crested Cormorant: 7 Jan (37) NIL (WGH), max; 16 Dec (18) KNX CBC (*fide* CPN). Green-backed Heron: 7 Dec (1) Sullivan Co. (BLC, Martha Dillenbeck, CFW, GWS); 22 Jan (1) SAB (KHD). Snow Goose (blue morph): 29 Dec (1) JNC (DH), unusual in that area. Canada Goose: 14 Jan (1035) HRA (TWRA), max; up to 5 neck-collared birds there during Jan & Feb (KHD *et al*).

Ducks: Green-winged Teal: 9 Dec (70) HRA (KHD, LHD), max. American Black Duck: 31 Jan (983) HRA (TWRA), max. Mallard: 31 Jan (2307) HRA (TWRA), max. Northern Pintail: 14 Jan (88) HRA (TWRA), max. Northern Shoveler: 14 Jan (3) WGC (BLC); 20 Jan (1) Cove Lake, Campbell Co. (Ron Hoff); rare in mid-winter in northeast part of region. Gadwall: 14 Jan (400) HRA (TWRA), max. American Wigeon: 14 Jan (312) HRA (TWRA), max. Canvasback: 29 Dec - EOP (3-16) NIL (WGH, KHD, LHD, RJH), "first consistent mid-winter record in CHA area" (KHD). Redhead: 22 Feb - EOP (12-2) JNC (Tom McNeil), max. Ring-necked Duck: 2 Dec. (350) CHL (KHD, LHD), max. Greater Scaup: 5 Jan (200) CHL (KHD, LHD), max, but "reduced and sporadic"; 12 Jan - EOP (86) NIL (WGH, KHD, LHD, AMJ); 30 Dec - 12 Mar (2) JNC (RLK *et al*), at same pond that hosted 5 last winter. Lesser Scaup: 5 Jan (40) CHL (KHD, LHD), max, but low. Oldsquaw: 23 Feb (1) CHL (KHD). Common Goldeneye: 5 Jan (35) CHL (KHD, LHD), max. Hooded Merganser: 19 Dec (160) HRA (KHD, LHD), max. Common Merganser: 7 Dec (2) BOL (BLC, Martha Dillenbeck, CFW, GWS), only report. Red-breasted Merganser: 7 Dec (38) NIL (RJH), max. Ruddy Duck: 5 Jan (250) NIL (RJH), max: "much reduced on CHL, apparently moved to NIL" (KHD).

Eagle - Crane: Bald Eagle: 4 Dec - 24 Feb (1-2 ad, 1 im) Fort Loudoun Lake, Knox Co., (Paul Pardue). Northern Harrier: 26 Jan (5) WGC (DH), large number in JNC area. Merlin: 29 Jan (1) CHA (WGH); 26 FEB (1) GNC (Jim Holt). Peregrine Falcon: 10 Dec (1) Jonesborough, WGC (James W. Brooks); 22 Dec (1) JNC (BLC). Virginia Rail: 15 Dec (1 found dead hanging on fence) Moccasin Bend, HLC (RJH). American Coot: 10 Dec (650) CHL (KHD), max. Sandhill Crane: The fall flight ran from 29 Oct into late Dec, with peak numbers from 13-20 Nov (max 1000 on 14 & 19 Nov at SAB); most records were from HLC & Meigs Co., but also Coffee, Bledsoe, Putnam, Cumberland, Bradley, Grundy, Sequatchie & Sevier (3 on 12 Dec) Cos., mostly within the expected migration corridor. Wintering records included up to 275 in the Blythe Ferry section of HRA, which has recently become a regular wintering area, & possible wintering birds in Coffee Co. (in Highland Rim & Basin Region) & Sequatchie Valley. The spring flight ran from early Feb to 22 Mar, peaking from mid Feb into early Mar (max 3000 on 2 Mar at Blythe Ferry), (all *fide* KHD).

Sandpiper - Woodpecker: Least Sandpiper: 3 Jan (1) BOL (RLK),2nd winter record in JNC area; max 6 at regular SAB wintering site (KHD). Dunlin: 3-11 Jan (1) BOL (RLK), rare there in winter; 26 Dec (1) Kingston Steam Plant, Roane Co. (Paul Hartigan). Common Snipe: 7 Feb (150) SAB (AMJ), max. American Woodcock: 5 Feb (2 calling) Austin Springs, WGC (RLK); 23 Feb (1 shot, had egg in oviduct) Conklin, WGC (Andy Ammann), indicating local nesting. Bonaparte's Gull: 1 Feb (350) CHL (KHD, LHD), max. Ring-billed Gull: 1 Feb (1500) CHL (KHD, LHD), max; sporadic at Chestnust Ridge landfill, ANC, max 400 on 8 Feb (CPN), "do gulls frequent other landfills in Tennessee?" LESSER

BLACK-BACKED GULL: 13 Feb (1 ad) CHL (TJW* ph, RJH, KHD, LHD, Paul C. Harris), 2nd state record pending TBRC action. Forster's Tern: 24 Dec (1) BOL (RLK), 1st local winter record, about 6th winter record in state. Mourning Dove: 3 Jan (1 near-total albino) JNC (RLK). Barn Owl: 1 all period, Albany, GNC (Richard and Willie Ruth Nevius); 28 Jan (6 eggs), 18 Feb (7 eggs, 1 hatching) nest in nest box inside barn, Gray, WGC (DH). RUFOUS HUMMINGBIRD: 1 im female (measured & banded) wintered at feeder in Clinton, ANC (*fide* J.B. Owen and Belinda Ford). BLACK-CHINNED HUMMINGBIRD: about 20 Oct - 14 Jan (1 im male, measured and banded on 6 Nov) CHA (*fide* LHD, Robert Sargent*), 1st state record. Red-headed Woodpecker: more wintered in KNX area than in recent years (2 on KNX CBC and 6 in Norris, ANC; *fide* CPN); 2 thru period in WGC (RLK & Jim Wayland).

Lark - Pipit: Horned Lark: 12 Jan (50) WGC (James W. Brooks); 7-9 Feb (37) Sequatchie Valley, Marion Co. (David C. Chaffin, Robin Rudd *et al.*). Purple Martin: earliest arrivals - 19 Feb (1) Ooltewah, HLC (Marilyn Whitener); 21 Feb (1) Lenoir City, Loudon Co. (Raymond Jenkins *fide* J.B. Owen). Common Raven: 1 Dec (1) Piney Flats, Sullivan Co. (RLK, JWC). Red-breasted Nuthatch: only a few reports in the CHA area (KHD,RJH) and in Sewanee, Franklin Co. (Jerry Ingles); virtually absent from KNX and JNC area. House Wren: thru22 Dec (1) WGC (RLK); 8 Dec and 5 Jan (1) NIL (RJH); 9 Dec - 1 Feb (1) CHA (*fide* KHD). Blue-gray Gnatcatcher: 21 Dec (1) BOL (DH), 1st winter record in JNC area. VARIED THRUSH: 13 Dec - 2 Feb (1) Signal Mountain, HLC (Maurice Edwards*, viewed sporadically by m.o.b.), 1st state record. American Pipit: 1 Feb (75) CHL (KHD, LHD), max.

Warbler - Grosbeak: Pine Warbler: 21 Dec (1) BOL (DH), 1st JNC area winter record. Palm Warbler: 19 Dec - 13 Jan (1) CHA (WGH); 6 Feb (1) WGC (Tom McNeil). Common Yellowthroat: 2 Jan (1) WGC (RLK). Chipping Sparrow: 11 on KNX CBC and 1 on Norris CBC (*fide* CPN); 9 Feb (3) Sequatchie Valley, Marion Co. (Robin Rudd). Fox Sparrow: 2 Jan (5) WGC (RLK), max. Purple Finch: present in somewhat higher numbers than in past few winters in KNX area (*fide* CPN); still scarce in JNC area (*fide* RLK). Pine Siskin: only a few scattered reports. Evening Grosbeak: 8 Dec (2) WGC (DH); 10 Dec - 26 Feb (2-11) 2 sites in GNC (Herb & Cynthia Craggin, Jim Holt, Doug Ratledge); 12 Dec - 16 Feb (1-13) Tennessee River Gorge, Marion Co. (Barbara Claiborne); 15 Feb - EOP (1-6) HLC (Gertrude Fleming); only reports.

Locations: ANC - Anderson Co.; BOL - Boone Lake, Sullivan & Washington Cos.; CHA - Chattanooga; CHL - Chickamauga Lake, Hamilton Co.; GNC - Greene Co.; HLC - Hamilton Co.; HRA - Hiwassee River Area, primarily Meigs Co., but also Bradley, McMinn & RheaCos.; JNC - Johnson City; KNX Knoxville; NIL - Nickajack Lake, Marion Co.; SAB - Savannah Bay, Hamilton Co.; WGC - Washington Co.

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EASTERN MOUNTAIN REGION - This was a mild winter with temperatures averaging well above normal. December was so mild that sunflower seeds germinated under my feeders and were 2 inches high at Christmas. Precipitation was about normal through the period. There were no significant snow falls.

The mild weather apparently resulted in good numbers of certain species,

while others were very scarce. Waterfowl numbers were low. There were good numbers of Eastern Phoebes, Carolina Wrens, and Eastern Bluebirds. Hermit Thrushes, Purple Finch, and Pine Siskins were scarce.

Loon - gull: Common Loon: 3 Dec (121) SHL (BLC), max., small. Numbers wintered on SHL and WTL. Horned Grebe: 30 Dec (3)/5 Jan (6) SHL (JWC/RLK), only reports. Double-crested Cormorant: 2 on SHL thru period (JWC, RLK). CATTLE EGRET: 16 Dec (1) Siam Valley, CAR (GOW, RDL, CFW), first area winter record. Green-backed Heron: 30 Dec (1) Butler, JOC (TM), third area winter record. Snow Goose: Jan-Feb (1 white morph, 1 blue morph) Unicoi, UNC (Johnny Lynch, RLK). Green-winged Teal: 30 Dec (1) BRI CBC (JWC, TL, AN). Northern Shoveler: 30 Dec (1) BRI CBC (JWC, TL, AN). Bufflehead: 95 max. on WIL (RLK), 110 max. on SHL (JWC). Hooded Merganser: 30 Dec (81) BRI CBC (JWC, TL, AN), max. Red-breasted Merganser: 23 Feb (3) BRI (RPL). Black Vulture: 16 Dec (1) ELI CBC (GOW, RDL, CFW), first ever for that count. Bald Eagle: 30 Dec (1) SHL (JWC, TL, AN). Red-shouldered Hawk: 30 Dec (1) BRI CBC (JWC, TL, AN), only report. Bonaparte's Gull: 10 Dec (68) SHL (BLC), max., small numbers there thru EOP.

Phoebe - grosbeak: Eastern Phoebe: 23 Dec (5) RNM CBC (m.o.b.), record high for this high mountain count. Red-breasted Nuthatch: modest numbers at low elev. but very few in spruce-fir on RNM. Carolina Wren: 23 Dec (38) RNM CBC, record high for this count. Eastern Bluebird: 23 Dec (40) RNM CBC, record high for this count. Brown Thrasher: 28 Dec (1) SHL (RPL). Logerhead Shrike: 30 Dec (10) BRI CBC (m.o.b.), max., high. Yellow-throated Warbler: 23 Jan - end Feb (1) UNC (*fide* GOW), first area winter record. Common Yellowthroat: 16 Dec (1 female) ELI CBC (FJA, TM, Dan Huffine). Chipping Sparrow: 16 Dec (1) ELI CBC (GOW, RDL, CFW). Savannah Sparrow: 30 Dec (3) BRI CBC (RLK). Fox Sparrow: 5 Jan (1) Little Milligan, JOC (RLK), only report. Rusty Blackbird: 23 Dec (1/6) Heaton Creek, JOC/RNM CBC (RLK, CFW, Rad Mayfield), all above 3000 ft elev. Red Crossbill: 16 Dec (2) Cove Ridge, JOC (BLC, GWS). Pine Siskin: 5 Jan (2) Little Milligan (RLK); 23 Feb (20) UNC (GOW), only reports. Evening Grosbeak: 50+ Shady Valley (John and Lorrie Shumate); Feb (200+) Simmerly Creek, CAR (TM), other scattered reports.

Locations: BRI - Bristol, Sullivan Co.; CAR - Carter Co.; ELI - Elizabethton; JOC - Johnson Co.; RNM - Roan Mountain, Carter Co.; SHL - South Holston Lake, Sullivan Co.; UNC - Unicoi Co.; WIL - Wilbur Lake, Carter Co.; WTL - Watauga Lake, Carter Co.

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STATUS OF THE REELFOOT LAKE, TENNESSEE HERON AND EGRET COLONY: 1990-1991

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During the early 1970's a new heron and egret colony was established at Reelfoot Lake (Pitts 1982). However, the few recent accounts (Ford 1985; Pullin 1980-1987; Waldron 1988) of this colony have dealt only with limited aspects (e.g., Anhinga (*Anhinga anhinga*) nests). The purposes of this study were to determine (1) the size of the area occupied by the colony, (2) the approximate number of nests in the colony, (3) the species composition of the colony, and (4) the perimeter of the colony. This information could be useful for future researchers who study the colony and its effects on the Reelfoot Lake area.

METHODS AND STUDY AREA

The heron and egret colony is located in the Tennessee Wildlife Resources Agency's (TWRA) Reelfoot Wildlife Management Area (RWMA) on Little Ronaldson Slough, west of Reelfoot Lake, in Lake County, Tennessee. The northeast edge of the colony borders the west end of Little Ronaldson Slough (latitude 36° 24' 06"; longitude 89°25'30") (Figure 1). About 95% of the trees within the colony are bald cypress (*Taxodium distichum*), few of which are less than 15 cm diameter at breast height (=DBH). Some of the trees were greater than 1 m DBH.

We made seven trips into the colony from 2 October - 18 November 1990 and six trips from 26 March - 18 June 1991. During our first trips into the colony in the fall there was no standing water; however, by 18 November 1990 the water in parts of the colony had risen to a depth of about 0.5 m and during the spring to about 0.75 m with scattered deeper holes. We accessed the colony by walking southeast along an old logging road on the RWMA and using a boat to cross Little Ronaldson Slough.

We first identified the perimeter trees (i.e., the outermost trees containing nests) of the colony. We attached a numbered aluminum tag (7.0 cm x 2.5 cm; 0.6 mm thick) with an aluminum nail approximately 2 m above the base of each perimeter tree containing one or more nests. Inside the perimeter trees we tagged most bald cypress trees greater than 20 cm DBH, whether or not the tree contained nests. The tag numbers started at 1001 and ended at 2000. Each tag also had "UTM" stamped beside the number. On 18 November 1990 and 23 April 1991 we took compass

readings with a handheld Silva compass (readings to the nearest 2°) and measured distances between perimeter trees (tree numbers 1001-1154) with a Hip-Chain (Topometric Products Ltd., Vancouver, Canada) which measured to the nearest 0.1 m. We used these measurements to sketch an outline of the colony on a topographic map; from this sketch we determined the approximate area of the colony with the technique used by Pitts (1984). We counted and recorded the number of nests in each of the tagged trees. We estimated the proportions of herons and egrets in the colony during our spring visits.

RESULTS

The perimeter of the colony contained 154 trees (numbers 1001-1154) and encompassed an area of 16. 2 acres (6.6 ha). This perimeter reflects the size of the colony as shown by our surveys in October and November 1990 (Fig. 1). The perimeter trees contained 387 nests, an average of 2.5 nests per tree. When tagging trees during the fall of 1990 we inadvertently tagged 9 trees (tag numbers 1601, 1602, 1614, 1624, 1629, 1631, 1675, 1831, 1825) outside of the perimeter (i.e., these trees contained no nests in 1990); in 1991, these 9 trees contained a total of 7 nests. We did not inspect the entire perimeter during the 1991 nesting season; additional nests could have been located outside of the 1990 perimeter.

We tagged a total (including perimeter trees) of 991 trees in the colony; 533 of these had at least one nest and 458 did not have any nests. Of the 1000 tags that we had available, 6 were lost and 3 trees received 2 tags. We counted a total of 2,051 nests in these 533 trees, with a maximum of 22 nests in one tree and an average of 3.8 nests per tree. We estimated that approximately 100 nests were in trees that were within the perimeter but were not tagged (because we had exhausted our supply of tags). Based on this estimate and the actual number of nests counted after the nesting season, we believe the colony contained approximately 2,150 nests in 1990. In 1991, we did not attempt to count all of the nests during the nesting season, but on our visits while nesting was in progress we observed, as noted above, that some nests were in trees beyond the 1990 perimeter. Apparently in 1991 the colony contained at least as many nests, if not more, as in 1990.

During the fall visits no herons or egrets were using the colony site for nesting or roosting; while we were able to make accurate nest counts at this time (because no leaves were on the trees) we could not accurately determine ownership of the nests. During all the spring visits, nesting birds were present; on these visits we estimated the composition of the colony to be approximately 90% Great Blue Herons (*Ardea herodias*) and 10% Great Egrets (*Casmerodius albus*). We observed a male Anhinga on 16 April 1991 and a female on 23 April 1991 in the vicinity of the colony, but we did not find any Anhinga nests. We observed Little Blue Herons (*Florida caerulea*) flying over Little Ronaldson Slough on 2 April and 23 April 1991, but we did not find any of them nesting in the colony. A single Snowy Egret (*Egretta thula*) was seen on Little Ronaldson Slough on 2 October 1990. No Black-crowned Night- Herons (*Nycticorax nycticorax*), Yellow-crowned Night-Herons (*Nyctanassa violacea*), Cattle Egrets (*Bubulcus ibis*), Green-backed Herons (*Butorides striatus*), or Double-crested Cormorants (*Phalacrocorax auritus*) were seen in the colony or in the vicinity of the colony on any of our breeding season visits. Our other colony observations of birds known to have nested at Reelfoot Lake are summarized in Appendix A.

While we did not make any counts of dead or dying trees in the colony, we did not observe any obvious adverse effects of the colony on the vegetation.

DISCUSSION

The Little Ronaldson Slough colony apparently formed in the early 1970's (Pitts 1982). In Table 1 we present a summary of all the census data from this colony that we have been able to locate for the years prior to our study. The first recorded count was made in the winter of 1976-1977 when there were approximately 90 nests in the colony (Pitts 1982). The colony rapidly increased in size, reaching 2,150 nests in 1990 (this study). Throughout its history, the colony has consisted predominantly of Great Blue Herons. Most of the census data in the 1980's came from the reports of Pullin (1980-1987) who annually made aerial photographs of the colony and from the photographs determined the number of nests and the species composition. Pullin's counts probably underestimated the actual number of nesting pairs because (1) on the date when photographed (mid-March) some of the adults, especially Great Egrets, had probably not yet arrived and, (2) aerial photographs usually do not show all of the nests in a colony (Gibbs et al. 1988). Our contention that Pullin's counts underestimated actual numbers is supported by the report of Fisher (1985) who visited the colony for two days in 1985 and estimated that 750 nesting pairs were present, in contrast to Pullin's count of 284 (Table 1).

One to two pairs of Anhingas have nested in the colony during recent years (Table 1; Waldron 1988). We did not observe an Anhinga nest, but we did see one male on 16 April 1991 and one female on 23 April 1991. Our observations are earlier than the normal nest dates (Ford 1985, Pullin 1987, Waldron 1988); therefore, a nest may have been present later.

The absence of nesting species other than Great Blue Herons and Great Egrets is consistent with the history of past colonies at Reelfoot Lake. Earlier colonies, such as Cranetown and Crane Roost, consisted primarily of Great Blue Herons and Great Egrets, with smaller numbers of night herons, cormorants, and Anhingas (Gersbacher 1964). Other species of wading birds, such as Snowy Egrets, Little Blue Herons, and Cattle Egrets have nested in the Reelfoot Lake area but were concentrated in colonies away from the lake (Ganier 1951, Ganier 1960). The presence of a nesting colony on the south end of Island 13 in the Mississippi River (Lake County) may have influenced the nesting composition of the Little Ronaldson Slough colony. In 1990 the Island 13 colony consisted of at least 1000 nests; species present included Cattle Egrets (65%), Snowy Egrets (10%), Little Blue Herons (20%), and Black-crowned Night-Herons (5%) (Jeff R. Wilson, personal communication).

The Little Ronaldson Slough colony is the largest ever reported from Reelfoot Lake and the second largest in the state. In the 1930's, the Cranetown heronry located on Big Ronaldson Slough of Reelfoot Lake contained about 1,000 nests of herons, egrets, Anhingas, and cormorants (Ganier 1933, Gersbacher 1939). Gersbacher (1964) reported that the Crane Roost heronry located at the north end of Otter Basin at Reelfoot Lake also contained approximately 1,000 nests. The largest heronry reported from Tennessee was the Dyersburg colony located 32 km south of Reelfoot Lake; in 1964 it contained an estimated 2,500 nests, most of which were Little Blue Herons and Great Egrets (Coffey 1964).

Since its formation in the early 1970's the Little Ronaldson Slough colony grew rapidly to its estimated 2,150 nests in 1990. During this time, the number and size

of other heron and egret colonies in the state has also increased (Pullin 1987). Factors that may have influenced this increase include a possible decrease in pesticide levels in aquatic systems and more stringent enforcement of laws protecting colonies from human disturbance. The Reelfoot colony is apparently still growing. Other large colonies in west Tennessee (e.g., Cranetown, Crane Roost, and Dyersburg (Gersbacher 1964, Leggett 1968)) either disbanded or fragmented, but each of those colonies was subjected to human disturbances. Since the Little Ronaldson colony is on state owned land, is relatively inaccessible, and public awareness of the value of the colony (and the penalties for disturbance) has increased, the colony may continue to grow. One of the effects of large nesting colonies is to alter water quality (especially nitrogen and phosphorus levels) and thus adversely affect the health of the trees supporting nests (Dusi et al. 1971). We did not attempt to document water quality and vegetation structure in the colony; therefore, we cannot make comparisons with similar habitats not having nesting herons and egrets. However, we did not observe large numbers of dead or dying trees, and our impressions are that the colony has not obviously affected the trees.

Accepted 2 November 1991.

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Fig. 1. Perimeter (as determined in November 1990) of the heron and egret colony bordering the west side of Little Ronaldson Slough, Reelfoot Lake. The numbers indicate tag numbers on trees.

Table 1. Summary of counts made before 1990 at the Little Ronaldson Slough heron colony at Reelfoot Lake.

	ESTIMATED TOTAL	SPECIES PRESENT[a]	
YEAR	NO. OF NESTS	NO. OF NESTS	SOURCE
ca 1972	established	GBH (100%)	Pitts 1982
1976	ca 90	GBH (ca 90) GE[b], A (1)	Pitts 1982
1977	ca 135[c]	GBH (100% ?) GE[b]; CE[b]; A (1)	Pitts 1982
1980	184	GBH (174), GE (10)[e]	Pullin 1980
1981	193	GBH (183) GE (10)[b]	Pullin 1981
	221	GBH (211) GE (10); A[b]	Pitts 1982
1982	222	GBH (210) GE (12)	Pullin 1982
1983	207	GBH (202) GE (5)	Pullin 1983
1984	265	GBH (250) GE (15)	Pullin 1984
1985	284	GBH (281) GE (3)[d]	Pullin 1985
	ca 750	GBH (700) YCNH (50)[h] A (1)	Fisher 1985 Ford 1985
1986	341+	GBH (316) GE (25-30)[e] A (1)[e]	Pullin 1986
1987	411	GBH (350) GE (60)[e] A (1)[e] DCC[b]	Pullin 1987
1990	2,150[f]	GBH (1,950)[g] GE (200)[g] A[b]	this study

Table 1 (continued)

[a]Great Blue Heron -- GBH; Great Egret -- GE; Cattle Egret -- CE; Anhinga -- A; Double-crested Cormorant --DCC.

[b]Adults present in the colony but no nests observed.

[c]Based on the nest count conducted during Feb. 1978.

[d]50 adults in the colony in July.

[e]Based on an estimate made by W. Cook.

[f]Based on nest counts made in Oct-Nov 1990.

[g]Based on estimates of species composition in 1991.

[h]We believe this identification is an error; both Pullin (1985) and Ford (1985) identified Great Egrets, but no Yellow-crowned Night-Herons, in the colony in 1985.

APPENDIX A

Birds (other than herons, egrets, cormorants and anhingas) known to have nested at Reelfoot Lake -- summary of breeding season observations in the Little Ronaldson Slough Heron Colony.

Wood Duck (*Aix sponsa*) -- seen on most trips into the colony and on Little Ronaldson Slough.

Mallard (*Anas platyrhynchos*) -- six were present on Little Ronaldson Slough on 2 April 1991; these could have been migrants but some semi-domestic Mallards nest at Reelfoot Lake (Pitts 1985).

Turkey Vulture (*Cathartes aura*) -- one to two individuals seen soaring high over Little Ronaldson Slough on 16 April and 23 April 1991.

Red-shouldered Hawk (*Buteo lineatus*) -- one to three individuals seen or heard on most trips into the colony. This species probably nests around the colony although no active nests were discovered.

Mourning Dove (*Zenaida macroura*) -- several individuals were seen in the vicinity of the colony on most trips into the colony.

Barred Owl (*Strix varia*) -- heard on most trips into the colony.

Red-bellied Woodpecker (*Melanerpes carolinus*) -- recorded on most trips into the colony.

Downy Woodpecker (*Picoides pubescens*) -- recorded on most trips into the colony.

Pileated Woodpecker (*Dryocopus pileatus*) -- recorded on most trips into the colony.

Eastern Phoebe (*Sayornis phoebe*) -- seen on 2 April 1991 near Little Ronaldson Slough.

Great Crested Flycatcher (*Myiarchus crinitus*) -- one heard on 23 April 1991 in the colony.

Blue Jay (*Cyanocitta cristata*) -- recorded on most trips into the colony.

American Crow (*Corvus brachyrhynchos*) -- recorded on most trips into the colony.

Fish Crow (*Corvus ossifragus*) -- one to two individuals recorded on most trips; 17 were seen on 2 April 1991 and 40+ were seen flying over the colony on 16 April 1991.

Carolina Chickadee (*Parus carolinensis*) -- recorded on each trip into the colony.

Tufted Titmouse (*Parus bicolor*) -- recorded on each trip into the colony.

White-breasted Nuthatch (*Sitta carolinensis*) -- recorded on most trips into the colony.

Carolina Wren (*Thyothorus ludovicianus*) -- recorded on most trips into the colony.

Blue-gray Gnatcatcher (*Polioptila caerulea*) -- very conspicuous and numerous from 2 April 1991 to 23 April 1991.

Brown Thrasher (*Toxostoma rufum*) -- one seen on 23 April 1991 in the colony.

Northern Parula (*Parula americana*) -- heard on 16 April 1991 and 23 April 1991 in trees adjacent to Little Ronaldson Slough.

Yellow-throated Warbler (*Dendroica dominica*) -- recorded on 2 April 1991 in cypress trees in Little Ronaldson Slough.

Prothonotary Warbler (*Protonotaria citrea*) -- very conspicuous and numerous on our 16 April and 23 April 1991 trips into the colony.

Kentucky Warbler (*Oporornis formosus*) -- two heard on 23 April 1991 in woodland adjacent to Little Ronaldson Slough.

Northern Cardinal (*Cardinalis cardinalis*) -- recorded on every trip into the colony.

Red-winged Blackbird (*Agelaius phoeniceus*) -- recorded around Little Ronaldson Slough.

Common Grackle (*Quiscalus quiscula*) -- recorded on every trip into the colony.

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CHIMNEY SWIFTS CHOOSE HOLLOW OAK TREE FOR NESTING SITE

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In early 1988 we purchased a late 19th century farmhouse surrounded by 30 acres of woods, fields, and a small pond. The birding habitat was wonderful, but the old log farmhouse was a shambles. The removal of a partially collapsed chimney was one of many major changes necessary in the long process of making the house habitable. For the remainder of that summer (1988), Chimney Swifts (*Chaetura pelaqica*) continued to circle the house in a vain attempt to locate the missing chimney. Our other chimney has a cap and is not acceptable to swifts.

After we moved into our house in 1989, the swifts were our ever-present companions and were often seen circling in the area of the old chimney. In the spring of 1990, we observed swifts gathering nesting material from the tips of a dead American elm (*Ulmus americana*) by flying up to the tree, hesitating momentarily, and then flying away with a small twig in their bills. During the latter part of May, we realized that some of the swifts were entering an opening in a very large white oak (*Quercus alba*), located 6 m from the house and approximately 12 m from the missing chimney.

The stately oak, 28 m high and 4.5 m in circumference at 1.5 m above the ground, has a narrow diamond-shaped opening approximately 3 meters high by 0.7 m wide at its midpoint. The opening begins 5 m above the ground. (Figure 1) The old tree is completely hollow from the ground to a height of approximately 10 m where branching reduces the diameter of the tree considerably.

The lower branches, some as large as 0.5 m in diameter, begin about 4 m above the ground and are also hollow. Even Wood Ducks (*Aix sponsa*) have checked out these hollow branches, one pair spending nearly a week before moving on. The opening is obviously the result of some long past calamity which tore away a major branch, and exposed the interior to the weather. An opening at the ground level is large enough to allow our dog, a beagle, access to the interior and to confirm that the hollow extends to the ground.

Because of the near vertical opening and the lack of a clear field for maneuvering, the typical spiraling flight of the swifts had to be modified to gain access to the tree opening. The swifts entered the tree by approaching on a direct flight and then dropping lightly into the aperture. This maneuver was accomplished so quickly it was often difficult to determine whether the swifts had entered the tree or passed on by. At least three, and possibly as many as five, swifts were seen entering the tree. Swifts leaving the opening would flutter up vertically out of the trunk before beginning their typical flight pattern.

We made no attempt to verify nesting until 16 September 1990 when an extension ladder was used to enable us to inspect the interior. A swift nest was observed approximately halfway between the bottom of the opening and the base of the tree, which would place it about 2.5 m above the ground. Only this one nest appeared to have been constructed, and there was no evidence of any earlier nest. The nest was located directly below the opening where it would have been partially exposed to rain during the summer.

The swifts returned in late March for the 1991 nesting season. Again we observed them entering the oak. In June the swifts suddenly disappeared. Shortly thereafter, our beagle discovered a raccoon (*Procyon lotor*) living in the oak. The three babies were soon old enough for the mother to move to the woods for more privacy from the persistent beagle. We speculated that the raccoon killed the swifts as they were not observed again in the tree. A check inside the tree in late summer disclosed no evidence of a nest, old or new. Apparently it had either been destroyed by the raccoon or dislodged by rains.

Chimney Swifts, having adapted so successfully to the advance of civilization, are commonly thought of as nesting almost exclusively in chimneys or other man-made structures. The widespread use of screens and chimney caps may have reduced somewhat the availability of open chimneys. However, we have evidenced that the swift has not lost its ability to use a hollow tree for a nesting site. We await the 1992 nesting season and hope that a swift, perhaps a survivor of the 1990 clutch, will once again choose our hollow white oak for a summer home.

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Fig. 1. Oak tree in which Chimney Swifts nested in 1990.

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1991 DISTINGUISHED SERVICE AWARDS

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The recipients of the 1991 TOS Distinguished Service Awards are: Ben and Lula Coffey (Memphis), Helen Dinkelspeil (Memphis), George R. Mayfield, Jr. (Columbia), and Robbie C. Hassler (Brydstown).

Ben and Lula Coffey: Mention the city of Memphis to an ornithologist, birdwatcher or birder almost anywhere in North, Central, or South America, and the response will probably be, "How are the Coffeys?" Space is not available here to do justice to their many contributions. They have played a major role in building the reputation of TOS and its journal, directly by way of their many field records and indirectly by way of the many individuals they have influenced (and housed and fed!).

Helen Dinkelspiel: If this lady wrote a book, it would surely be called "The joy of birding." Extensive field work, careful study of species and habitats, a love of travel, and a great sense of humor are combined in one of Memphis' most active birders for 33 years. A TOS member since 1957, she has served as chapter secretary, chapter vice-president, chapter president, state director and local director. She has also been state secretary two times, no small task. She attends nearly all state meetings and participates in the affairs of the society. She has participated in Breeding Bird Surveys for over 20 years and in most chapter counts. Perhaps her greatest attribute is her willingness to always take new birders under her wing, a service that is invaluable to TOS.

George R. Mayfield, Jr.: Son of a TOS founder, an avid birder since childhood, and father of a family of birders. He has been a TOS member since 1961 and has been banding birds since 1978. He has consistently contributed records to *The Migrant* for many years. He helped revive the Columbia chapter where he has been active in virtually all of the chapter activities. He served as state president in 1968-70. He served as a member of the Tennessee Conservation Commission during Lamar Alexander's second term as governor. More recently, he has done extensive work on the Tennessee Breeding Birds Atlas. He is one of the strongest supporters of TOS and conservation efforts in Tennessee.

Robbie C. Hassler: She has been a TOS member since 1967. Even before becoming a member she recorded observations on Sandhill Cranes and continues to do so. She has attended most state meetings since becoming a member. She hosted a state foray in 1979 and has participated in most of the state forays. She participates in most counts, contributes to the Cornell Nest Record program, leads bird walks in state parks, gives numerous slide programs, and has participated in Breeding Bird Surveys. She consistently reports observations to *The Migrant* and has published three articles. She has served as Director-at-Large for middle Tennessee several times. In most of these activities she was assisted by her husband, David. She has apparently not been hampered by the absence of a local chapter; instead, she has demonstrated, again and again, that "one person can make a difference."

The Migrant, 62(4):100-102, 1991.

MINUTES OF THE 1991 FALL BOARD OF DIRECTORS MEETING TENNESSEE ORNITHOLOGICAL SOCIETY

The 1991 Fall Meeting and Symposium, consisting of a Board of Directors meeting, symposium, and field trips, was held at Shoney's Inn at Lebanon, Tennessee on October 4-6, 1991.

The Board of Directors meeting was called to order by President Bob Ford. Minutes of the Spring, 1991 meeting were distributed to the Directors and approved except on the last page the spelling of "Hesler" was corrected to have only one "s".

TREASURER George Payne, Jr. reported 897 members to date. Current assets were $78,990.46. Income during April 24 - September 30, 1991 was $4,935.32. Total expenses during this period were $4,545.69. He advised that no dues increase was needed. The 1992 budget of $25,000 was accepted as presented.

No CURATOR had been appointed to replace the late chairman Dr. James Tanner. Chuck Nicholson advised that back issues of The Migrant are stored at Zoology Dept. of University of Tennessee. Nicholson had been selected at the Spring, 1991 meeting to chair a committee to locate a permanent location. The back issues are to be moved on October 26, 1991 to President Ford's office in the new Tennessee Conservation League headquarters at 300 Orlando, Nashville, TN 37209 at least for one year. Long-term storage is still being investigated; other material includes Dr. James Tanner's and Dr. Joe Howell's bird notes and records. A new Curator is to be responsible for deciding whether future records go to the University of Tennessee Library, with back issues of The Migrant, or elsewhere. If the Curator is in another part of state separate from The Migrant, someone else needs to be responsible locally for mailing out The Migrant. A new Curator is to be recommended at the Spring meeting. Lula Coffey recommended an ongoing inventory of his/her stored items be maintained by future curators. Between 40 and 50 feet of shelf space is needed for the Curator's inventory. George Payne and Katherine Goodpasture recommended for the committee's consideration that Historian and Curator's positions be kept separate.

EDITOR of ***The Migrant*** Dr. David Pitts reported that the September, 1990 issue was ready for printing. The December, 1990 issue will be the 75th anniversary issue, which will include: ospreys, bald eagles, shorebirds, and Dr. James Tanner's presentation at the Spring Meeting, "Looking Forward, Looking Backward". He advised that a historian is needed to keep records of chapters and pictures of members. Chapters were encouraged to submit histories for their chapters to the Editor.

Reports of Standing Committees

BREEDING BIRD ATLAS - Chuck Nicholson reported all field work has been done. Some coverage had been completed for about 60 percent of all blocks. All priority blocks had some coverage. An appeal was made for preparation of 2-page Species Accounts. The target date for manuscript completion was reported to be July, 1992.

BIRD RECORDS COMMITTEE - Rick Knight reported the Committee has worked on some species and is seeking outside help with a few others.

CONSERVATION COMMITTEE - Ken Dubke requested ideas for TOS conservation projects. Bob Harcher reported that Monsanto Chemical Company, which had saved and enhanced valuable wildlife habitat on their 5,000-acre Columbia site due to TOS and TWRA input, was named Industrial Organization of the Year by Tennessee Conservation League and the Natural Resources Conservation Society. Dubke reported Brainerd Levee of Chattanooga has been accepted as a Wildlife Observation Area.

PATCHES AND DECALS - Carolyn Bullock reported she has patches available.

TOS AWARDS - Chairman Ron Hoff could not be present. President Bob Ford reported Hoff desires that someone else accept this position.

OLD BUSINESS

Margaret Mann reported plans to put a HISTORIC MARKER in the alley on the outside of the Nashville building (currently Sports Page Restaurant) where TOS was started (419 Union Street). It was decided to move it up the street on the outside of the building at 5th and Union Street. Prior approval is needed from a North Carolina part owner and the Metro Historical Commission. A contract has been prepared for placement of the marker on the building by a sign company. One copy of the contract will be kept in the President's file and one with the Nashville Chapter's Curator.

Final entries in the contest for a NEW COVER FOR THE MIGRANT have been received. Bill Fowler moved that we use a special cover as submitted by Teresa Bullock only for the 75th Anniversary issue; the subsequent issues are to return to the traditional cover. The motion carried.

NEW BUSINESS

Ken Dubke recommended that President revitalize a SELFSTUDY COMMITTEE for TOS. Ford hoped to implement it by Fall, 1992.

President Ford announced plans to appoint a FIELD INVENTORY STUDY COMMITTEE. Strategies for chapter membership promotion is to be included in this study.

Martha Waldron reported that BIRD RECORDS have been extensively accumulated by Ben and Lula Coffey and others. She advised she has compiled much of this and is often contacted for use of this data for environmental review and compilations of site-specific bird lists. She urges others with such records to submit them to their Chapter Curators for compilation.

A motion was made by Chuck Nicholson concerning OWNERSHIP, DISTRIBUTION, AND USE OF BREEDING BIRD ATLAS DATA, as follows:

1. Atlas data, as used here is defined as the computer files, field maps, and survey forms resulting from the Atlas project.
2. Atlas data are owned by the Tennessee Ornithological Society.
3. Until publication of the Atlas book, the TOS Curator will control distribution of the Atlas data.
4. Following publication of the Atlas book, the distribution of Atlas data will be controlled by the Atlas Coordinator.
5. Atlas data will be made available to legitimate users upon submission of a written request, describing the intended use. The applicant will sign an agreement stating that data will not be distributed to others, that it will be put to the intended use, and that the TOS will be acknowledge in all publications and reports resulting from use of the Atlas data.
6. The user may be charged a nominal fee to cover expenses involved in filling his/her request.

7. If the Atlas Coordinator or the Curator denies a request for use of Atlas data, the applicant may appeal the request to the TOS President, or, if the President denies the request, to the TOS Board of Directors.

George Payne, Jr. seconded Nicholson's motion concerning use of Atlas data. Wallace Coffey amended the motion that every written request be responded to in writing within 30 days concerning yes or no; and if no, the written notice include a method of appeal. The amendment was agreeable to Nicholson. The motion with amendment passed.

Announcement was made that the SPRING MEETING is to be at Oak Ridge on May 1-3, 1992 and to be hosted by the Knoxville Chapter.

Minutes by Bob Hatcher, TOS Secretary

(Completion of Minutes)

The Migrant, 62(4):102, 1991.

EDITORIAL

This is the fifteenth and last issue of ***The Migrant*** for which I will be serving as editor. Many members have made contributions to the journal or have directly assisted me during my term of office. John Robinson and Bob Ford worked as Season Editors. Glen Eller, Rick Knight, Richard Lewis, Steve Stedman, David Vogt, and Martha Waldron served as Regional Compilers. Damien Simbeck and Susan McWhirter compiled the Counts. Numerous persons reviewed manuscripts. The people who have been most responsible for the success of ***The Migrant*** are the contributors of observations and the authors of manuscripts. To all of these I offer my thanks.

TOS has multiple roles, including commitments to science, conservation, education, and historical documentation. I wish the society well in its endeavors to meet these challenges. Farewell.

T. David Pitts

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THE EARTH COMPLEX, MEMPHIS, TENNESSEE

Martha G. Waldron and Dianne P. Bean
Memphis, Tennessee

The Environmental and Resource Technology (EARTH) Complex is known as "The Pits" to local birders, Ensley Bottoms to long time residents of Memphis and Shelby County, and the Pidgeon Industrial Park to city government. The once partially wooded bottomland was utilized for agricultural purposes under private ownership until it was acquired by the Memphis and Shelby County Port Commission in 1956. The 4500 acre tract was purchased for future development as an industrial park, but in 1990, under a lease agreement with the Port Commission, the City of Memphis opened the EARTH Complex to the public as a research, reclamation and disposal demonstration area for solid and organic waste material. Located about eight miles south of downtown Memphis, the Complex is bounded by the Mississippi River, the TVA Allen Steam Plant, the T. E. Maxon Wastewater Treatment Facility, T. O. Fuller State Park and Chucalissa Archaeological Museum and private farm land. Established on the concept that an appropriately planned and managed organic and solid waste treatment and research facility could concurrently support viable wildlife habitat, the EARTH Complex has received three national awards.

One important function of the EARTH Complex is to research the treatment and disposal of organic waste. For example, ongoing research is being conducted on the application of various mixtures of sludge from the wastewater treatment plant and composted grass clippings, leaves and/or tree trimmings on crops, such as winter wheat, cotton, soybean, and on domestic shrubs, flowers and lawn grass. One by-product of this research is that the Bermuda and Zoysia sod grown at the EARTH Complex is used in city parks and on public golf courses. A unique project utilizing tree stumps and brush picked up by city sanitation crews is a hibernaculem. The brush is buried in trenches and will hopefully attract burrowing animals, such as foxes and snakes. The animals will make their homes in the earthen structure and in turn, they will help control the rodent population at the EARTH Complex (Charlier 1991).

An ever present area of concern addressed by the EARTH Complex is the disposal of sludge and solid waste. Over one thousand acres of the EARTH Complex are scheduled for use as a solid waste landfill. The acreage has been divided in such a way that as each landfill section is closed out, it will become a sludge disposal site, and areas previously used for sludge disposal will be used for landfill. Between one-third to one-half of the EARTH Complex is presently subleased for agricultural use.

The T.E. Maxon Wastewater Treatment Facility, completed in 1975, utilizes 700 acres of the EARTH Complex for sludge disposal. Before the sludge can be safely used for agricultural purposes, it is presently treated in a succession of five oxidation sludge holding lagoons. There are plans to increase the number of sludge ponds in the near future and to recover methane as fuel to power the wastewater treatment plant.

The root of the development of the EARTH Complex is the concept that a waste disposal area environmentally managed can become a viable ecosystem for wildlife

habitat. Consequently, areas of the Complex have been designated as wildlife preserves. Three of the larger oxidation sludge lagoons have been designated as a bird sanctuary. The 40 acre bird sanctuary was established, partially, because of its use by migrating shorebirds, but mainly because of the continuous breeding colony of Black-necked Stilts (*Himantopus mexicanus*) on the lagoons since 1984 (Coffey, 1985; Anon. 1990). A one hundred acre "wet area" presently used for sludge disposal west of the bird sanctuary also attracts shorebirds and waterfowl. A 770 acre strip of wetland and bottomland forest at the south end of the facility has been designated as an undeveloped wildlife refuge. With its year-round availability of water and wetland areas, the EARTH Complex is a valuable and productive supplemental wetland area for migratory waterfowl and shorebirds.

The sewage lagoons of Ensley Bottoms and now the EARTH Complex have attracted shorebirds for many years. The Memphis Chapter of TOS began working the area in 1982. Earlier observations recorded by local birders date back to 1932 (Coffey, pers. com). Of the 257 species of birds recorded in the area, 33 species of shorebirds have been seen on or near the lagoons. In addition to fairly common migrants, first state records and several rare visitors have been observed. State records include the Garganey (*Anas querquedula*); Wilson's Plover (*Charadrius wilsonia*); and the White-faced Ibis (*Plegadis chihi*). Rare visitors for west Tennessee include the Wood Stork (*Mysteria americana*), Black-bellied Whistling-Duck (*Dendrocygna autumnalis*), Merlin (*Falco columbarius*), Peregrine Falcon (*Falco peregrinus*), Marbled Godwit (*Limosa fedoa*), Whimbrel (*Numenius americanus*), Ruff (*Philomachus pugnax*), Common Ground-Dove (*Columbina passerina*), Western Kingbird (*Tyrannus verticalis*), Vermilion Flycatcher (*Pyrocephalus rubinus*), Scissor-tailed Flycatcher (*Tyrannus forficatus*), and the Yellow-headed Blackbird (*Xanthocephalus xanthocelphalus*).

Nesting records include the unusual Black-necked Stilt. The success of the Black-necked Stilt at this site could be one reason for the recent occurrence of nesting sites in northwest Shelby County and further north in Stoddard County, Missouri (Jacobs, 1991) and in Chicot County, Arkansas (Parker, 1991). The EARTH Complex was also the first nesting site of the Sora (*Porzana carolina*) in Tennessee (Waldron, 1990). The Painted Bunting (*Passerina ciris*), known to breed in Tennessee only in Shelby County in 1934 (Coffey, unpublished records), was recorded as a possible nesting bird in this locale in 1986. The Song Sparrow (*Melospiza melodia*), a rare summer resident in west Tennessee, was observed for the past two summers although no positive nesting record was established.

In addition to these nesting records at the EARTH Complex, the Short-eared Owl (*Asio flammeus*), the Smith's Longspur (*Calcarius pictus*) and an increasing number of wintering waterfowl have made the EARTH Complex their occasional winter home. It has been the summer breeding ground for the state threatened Grasshopper Sparrow (*Ammodramus savannarum*), and it is a migratory resting and feeding area for flycatchers, vireos and warblers.

With the success of the EARTH Complex city planners and managers have demonstrated that the incorporation of environmental considerations and needs in waste disposal procedures does enhance the protection of wildlife without additional costs. Hopefully, the immediate success of the EARTH Complex will strengthen its position against industrial development and the possibilities of considering wildlife habitat in future development of waste disposal sites/facilities.

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PINE SISKINS DIE FROM SALMONELLOSIS

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Like most TOS members, my family and I have spent many enjoyable hours watching birds at the feeders in our yard. During the winter of 1989-1990, we had record high numbers of Pine Siskins (*Carduelis pinus*), but our joy turned to concern and then grief as many siskins became obviously sick and several died.

In early November 1989 I had my feeders filled with sunflower seeds, as usual, and was eagerly looking forward to what the season would bring from the north. Regularly occurring species at my feeders included: Mourning Dove (*Zenaida macroura*), Red-bellied Woodpecker (*Melanerpes carolinus*), Downy Woodpecker (*Picoides pubsecens*), Blue Jay (*Cyanocitta cristata*), Carolina Chickadee (*Parus carolinensis*), Tufted Titmouse (*Parus bicolor*), White-breasted Nuthatch (*Sitta carolinensis*), Carolina Wren (*Thryothorus ludovicianus*), Northern Cardinal (*Cardinalis cardinalis*), Purple Finch (*Carpodacus purpureus*), House Finch (*Carpodacus mexicanus*), and American Goldfinch (*Carduelis tristis*).

A few Pine Siskins first appeared in late December 1989 and early January 1990. Then they rapidly increased until as many as 200 were feeding at one time. During

this time I watched them closely. Most departed in early March, but about 10 March, while an estimated 90 siskins were still present, one individual was observed sitting on a second floor bedroom window sill. It remained there for a couple of hours with its feathers unnaturally fluffed, and it vomited the recently eaten seeds. From then until mid-April 1990 this scene was often repeated at various locations around the yard. Some siskins were found dead. When I checked with other people who had feeders I found that they too were witnessing similar scenes. I salvaged 13 siskins and 1 goldfinch and shipped them to the Georgia Poultry Laboratory at Dalton, Georgia. Their diagnosis was salmonellosis, a disease caused by the bacterium *Salmonella*. This same group of organisms frequently causes food poisoning in humans.

The birds were concentrated at feeders because of the abundant supply of food. The sunflower hulls were not allowed to accumulate but were shoveled up and replaced at least once a week with clean sand, gravel and soil. Food was not placed on the ground. The weather turned warm in early March with temperatures in the 70's on the 6th and 10th and in the 80's on the 11-14. Rain accompanied the warm weather. Even though an effort was made to provide sanitation, the resulting deaths proved otherwise. The warm weather may have facilitated the survival and/or transmission of the bacteria.

What can be done to reduce the chances of an outbreak of this type from occurring again? E. H. Dunn (*FeederWatch News* 1(2):9-10, 1988) stated that salmonellosis is the most common cause of death in birds autopsied by wildlife health authorities. She noted that species that form large flocks are most likely to be infected. She suggested: (1) clean and disinfect feeders at least once a year and more frequently if diseased birds are seen; (2) stop feeding completely for 10 days when many bird deaths occur; and, (3) place food in locations that will lessen the chance of contact with the fecal material from other birds.

I wish to thank Kenneth H. Dubke for assistance in the preparation of this manuscript.

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RED CROSSBILL FEEDING YOUNG IN SHELBY COUNTY, TENNESSEE

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On the morning of 23 May 1991, Kevin McKown and Bob Endres observed a flock of Red Crossbills (*Loxia curvirostra*) at Farmington Country Club in Germantown (adjacent to Memphis) in Shelby Co., Tennessee. Several other observers found the flock on 24 May. On 26 May, George and Jeanne Payne, Virginia Reynolds, Martha Waldron and I counted 10 Red Crossbills, including two fledglings, at the same location. The young birds were smaller than the adults, thickly streaked, and with the bill not noticeably crossed. Bent (1937, Life Histories of North American Cardinals, Grosbeaks, Towhees, Finches, Sparrows, and Allies. Dover Publications, Inc. New York) states (p. 507) that, "When the young leave the nest their bills are not crossed but during the next following weeks the tips of the mandibles extend and cross as in the adults." The feathers were not sleek, but rough and fluffy. Martha Waldron noted that the feathers on the wings had whitish edgings. Bent (ibid.) describes the juvenal plumage as having feathers with whitish edgings.

The young birds followed the adults. One was seen begging, with shaking wings and constant calling. I observed an adult male extract an item (presumably a piece of pine seed) from a pine cone and drop it into the mouth of a young crossbill. Bent (ibid.) notes, "The young are fed by the parents for at least two weeks after leaving the nest."

Based on the observations reported here and the comments of Bent (ibid.), I suspect that the young were hatched in Shelby county. This is the first record of Red Crossbills in Shelby County and the first possible evidence of their breeding in Tennessee outside of the Appalachians (McNair, *Migrant* 59:105-113, 1988). The nearest nesting record is apparently from Noxubee National Wildlife Refuge in central Mississippi where Red Crossbills nested in 1976 (Warren et al., *American Birds* 31:1100, 1977).

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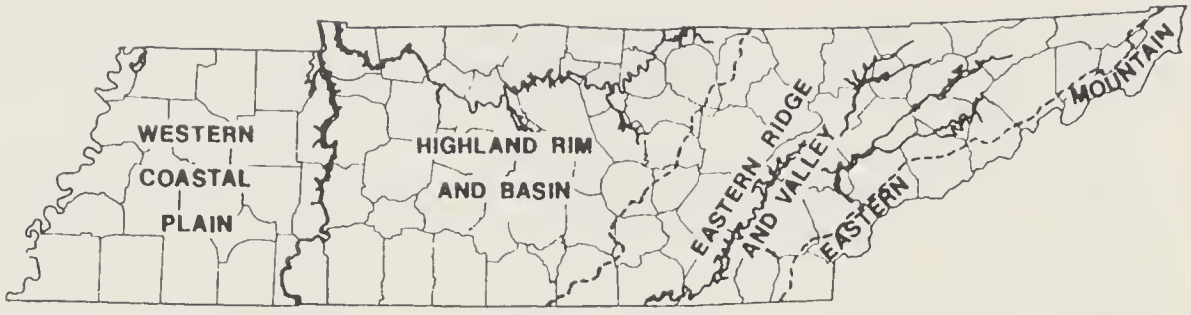
THE SEASON

ROBERT P. FORD, Editor



Spring: 1 March - 31 May 1991

Weather patterns early in this season seemed to be a continuation of the mild, wet winter of this year. Across the state, precipitation was generally above normal and temperatures were cool but near normal.

Migration and local occurrences of birds reflected the weather patterns of the season. In the coastal plain, waterfowl lingered longer than normal in many areas, possibly because of wet weather. However, in East Tennessee, waterfowl left early this year, perhaps because of mild temperatures. Many spring migrants arrived in Tennessee early this year, notable records include Little Blue Heron, Chimney Swift, and Red-eyed Vireo. Many other spring migrants arrived close to the usual dates, although in relatively lower numbers - shorebird concentrations were monitored weekly at sites in the Coastal Plain.

Rarities of the season included a state record Black-shouldered Kite and many unusual nesting occurrences. Details are described below in the regional reports.

Abbreviations used in the following report include: ad - adult; CBC - Christmas Bird Count; EOP - end of period; ers - earliest reported sighting; et al - and others; f - female; m - male; max - maximum number reported from 1 county in 1 day; m.ob. - many observers; NWR - National Wildlife Refuge; TBRC - Tennessee Bird Records Committee. * - record has been documented.

WESTERN COASTAL PLAIN - Despite the record setting wet spring with cool but near normal temperatures, dedicated observers throughout West Tennessee reported a number of species including a state record for Black-shouldered Kite and a nesting report of Red Crossbills. With an increase in the number of observers reporting from several locations ranging from Reelfoot to Memphis and east to the Tennessee River, sampling of bird populations is becoming more reliable. Migrants arrived like clockwork, and the "housekeeping" of summer residents did not go unnoticed by people involved in atlasing. Shorebirds were observed in large concentrations at the EARTH Complex (TEC) and on Island 13 and in the flooded fields of Lake and Dyer counties.

Loon-Sora: Common Loon: 4 Apr (1) HWR (JBC); 3-15 May (1, but two different birds during the observation period) PEF (MLG, MTOS), late SBC; 17 May (1) Blue Basin, REL, LKC, (MAG, Gail Greene, Jackie Taylor); 18/27 May (3/1) LKC (WGC). Double-crested Cormorant: 23 Mar-EOP (1-250) LKC, 24 Mar-EOP (220-3) DYC

(WGC); 24 Mar (185) TEC (MLG); 25 Mar (1) Chickasaw NWR, Lauderdale Co. (JBC, HSH); 26 Mar (5) O'Neal Lake, HWR (JBC). Anhinga: 16/23 APR (pair) Little Ronaldson Slough, REL, OBC (MAG, Judy K. Knox, TDP). American Bittern: 6 Apr (1) Hog Creek Rd., NE DTC (CHB), first report for county; 6/20 Apr (1/3) Easton-Brazil Marsh, GBC (MAG, SDL); 29 Apr (2) two different locations, LKC (WGC); 2 May (1) Tatumville Marsh, DYC (MAG). Least Bittern: 4 May (1) O'Neal Lake, HWR (Robert L. Browne, David Smith, Sue Winikles, and others); 16 May (1) O'Neal Lake., HWR (JBC, LBC, HSH); 26/27 May (1) Long Point, REL (WGC), observed carrying nesting material. Herons and egrets were reported in many counties. An aerial survey was made in 1989 and 1990 of the heronries in West TN, tabled results should be published separately. The aerial survey date and field observations will establish a basis for management by TWRA. Great Blue Heron: 2 Apr (1000+) Little Ronaldson Slough, REL LKC (MAG, Judy K. Knox). Snowy Egret: 11 May (1) PEF (RWP). Little Blue Heron: 28 Mar (1) LKC (WGC), early. Black-crowned Night Heron: 20/30 Apr (4/1) LKC/DYC line, 18/25 May (3/1) DYC (WGC) . Yellow-crowned Night Heron: 21 Apr (1) REL, OBC (WGC); 5/11 May (1/4) TEC (MLG, TAF); 30 Apr (1) REL, OBC (MAG); 18 May (6) DYC (WGC) four different nesting sites within Memphis city limits. Three sites with six to eight nests, each with three to four young; one site with two active nests (BBC, GRP, JKP, MGW). WHITE IBIS: 14 Apr (1 ad) LKC/DYC (WGC), first spring record. Field observations reported many lingering waterfowl (16 species) in various counties. This could be attributed to our mild, wet winter and very wet spring. Tundra Swan: 7 Mar (1) HYC (JBC). Greater White-fronted Goose: 1 Mar (6) BRF (John C. Robinson) ; 7 Mar (6) HYC (JBC); 15 Mar (2 ad) IS 13 WGC, late date for West TN. Lesser Scaup: 5 Mar (250+) REL, LKC, 16 Mar (235) Sludge Lagoon, LKC (MAG); 1 Apr (600+) TEC (MLG, TAF). Ruddy Duck: 5/19 Mar (2000+/3000+) REL, LKC (MAG); 1 Apr (1000+) North Lake, SBC (MLG, TAF). Bald Eagle: 6/19 Mar (2 on nest) Lake Isom, LKC (WGC,MAG); 23/24 Mar (5; 1 ad, 4 im) REL, LKC (WGC). Osprey: 19 Mar (2 on nest) Lower Blue Basin, LKC (MAG); 6 Apr (1) REL,LKC, 14 Apr/ 1 May (1/2) DYC (WGC); 15 Apr (1) Garrett Lake, WKC (MAG, SDL); 25 Apr (1) HWR (DAM, DPB, VBR), 30 Apr (2 on nest), REL, LKC (WGC); 20 May (1) Lake Graham, MDC (JCG). Mississippi Kite: 5 May (16) MEM (MTOS); 11 May (1) PEF (GRP, JKP); 15 May (1) Easton-Brazil Marsh, GBC (MAG), location of nests should be reported to the regional compiler. BLACK-SHOULDERED KITE: 20 May (1) Dyersburg, (WGC and family) first state record, details submitted and were accepted by the TBRC. Sharp-shinned Hawk: 7 Mar (1) HYC (JBC); 2 Apr (1) MDC (HSH); 5 Apr (1) LDC (RPF); 5 Apr (1) MDC (HSH); 20 Apr (2) Big Hill Pond, McNairy Co. (MTOS); 21 Apr (1) Ponderosa, DTC (CHB); 5 May (1) MEM, SEP (MTOS). Cooper's Hawk: 3 Mar (1) PEF (RWP); 15 Mar (1) TEC (VBR, CHB); 25 Mar (1) LKC (JBC, HSH); 26 Mar (2) Windrow Rd, HWR (JBC); 5 Apr (1) LDC (RPF); 20 Apr (1) Hwy 45, GBC (MAG,SDL); 25 Apr (1) TEC (MGW, VBR); 1 May (2) REL, OBC (VBR, HBD, BHW, CHB). "Krider's" Red-tailed Hawk: 5 Mar (1) LKC (MAG). Peregrine Falcon: 17 Apr (1) Phillipy, LKC (WGC); 4 May (1) Hwy 79 W, LKC (WGC); 9 May (1) TEC (MGW,VBR). Purple Gallinule: 29 Apr (1) DYC (WGC). Sora: 6 Apr (1) Easton-Brazil Marsh, GBC (MAG); 20 Apr (1,4,1) three different locations, LKC (WGC); 25 Apr/9 May (/2) TEC (MGW, VBR, CHB); 5 May (1) PEF (VBR, DAM).

Shorebirds: Twenty-four species of shorebirds were observed at the EARTH Complex (TEC) this season. The area was checked twice a week. Records were

submitted by (CHB, DPB, TAF, MLG, DAM, RWP, VBR, JEW, MGW). Black-bellied Plover: 5 May (1) PEF (MLG); 27 May (15/10) LKC (WGC); 14 May (1) TEC (VBR, DAM). Lesser Golden Plover: 19 Mar (4) REL, OBC (MAG); 19 Mar- 6 Apr (60-419+) DYC, 23 Mar (60), 24 Mar (an estimated hundreds or thousands in field. There was a mixed flock which included Pectoral Sandpipers and Greater and Lesser Yellowlegs), 28 Mar-21 Apr (200-90) REL, LKC (WGC), numbers higher than those observed in same county in 1988; 24 Mar (34) TEC (MLG); 1 Apr (5)TEC (MLG, TAF); 30 Apr (6) LKC (MAG); 3 May (30) LKC (WGC). Semipalmated Plover: 1 Apr (3) PEF (MLG, TAF); 2 May-EOP (1-4) TEC. Black-necked Stilt: 16 Apr-EOP (2-18) TEC , four nests; 1 May (2) Moss Island Lauderdale Co.; (WGC). Greater Yellowlegs: 6 Mar - 2 May (1-90) DYC (WGC); 15 Mar - 9 May (10 max) TEC; 16 Mar (7) DYC (MAG, SDL); 19 Mar (126) REL, OBC (MAG). Lesser Yellowlegs: 2 Mar (5) TEC (RWP), SBC early record; 3 Mar-EOP (5-303), 25 Apr (506) TEC, second highest count since 1941; 6 Mar (2) DYC (WGC); 19 Mar/30 Apr (175/75+) REL. OBC (MAG); 6 Mar-3 May (1-164) LKC (WGC). Solitary Sandpiper: 28 Mar-5 May (1-10) DYC (1-15) LKC (WGC); 31 Mar-EOP (1-219), 25 Apr (298) TEC, highest number recorded for TN; 1 Apr (1) PEF (MLG, TAF). WILLET: 21-25 Apr (1) PEF (MLG, RWP); 5 May (6) MEM, (MTOS). Spotted Sandpiper: 21 Apr - EOP (2-5) TEC. Upland Sandpiper: 31 Mar (9) TEC (Jack Harrell, m.ob.); 5 May (1) TEC, SFD (MLG); 11 May (1) TEC (VBR, DAM), late departure date. Semipalmated Sandpiper: 1 Apr (3) PEF (MLG, TAF),early; 21 Apr - EOP (1-300) TEC. Western Sandpiper: 21 Ap -5 May (1-10) PEF (MLG); 11 May (1) PEF (GRP, JKP); 5 May-EOP (3-1) TEC. Least Sandpiper: 15 Mar-EOP (6-1500) TEC. White-rumped Sandpiper: 25 Apr/3-5 May (1) PEF (MLG, MTOS), early; 5-25 May (5-45) TEC; 2/3 May (2/11) LKC (WGC). Baird's Sandpiper: 1 Apr/2 Apr/21-25 Apr/ 5 May (1-3) PEF (*MLG, TAF, VBR, CHB, MGW), 1 Apr observation is early; 5/7/16 May (1) TEC (MLG, VBR, DAM). Pectoral Sandpiper: 3 Mar-EOP (10-556) TEC; 6 Mar-6 Apr (8-150) LKC; (1-55) DYC (WGC), 19 Mar (225), OBC (MAG). Dunlin: 24 Mar (1) TEC (MLG), early; 3/17 May (1-7) PEF (MLG); 9-25 May (13-1) TEC; 11 May (1) PEF (MLG, RWP); 26 May (93) LKC (WGC). Stilt Sandpiper: 24 Mar-EOP (1-17) TEC; 3/4 Mar (1) PEF (MLG); 26 May (1) LKC (WGC), late. Buff-breasted Sandpiper: 14 May (1) TEC (DAM, VBR), second spring record for SBC. Short-billed Dowitcher: 3-16 May (5-15) PEF (MLG); 4-19 May (6-27) TEC (MLG); 11 May (15) PEF (MLG, RWP). Long-billed Dowitcher: 9 May (5)TEC (VBR, MGW).

Phalarope-Crow: Wilson's Phalarope: 25 Apr - 9 May (1) TEC; 5 May (1) PEF, SFD (MTOS); 5 May (5) TEC (MLG). Laughing Gull: 11 May (1) TEC (RWP, MLG), second spring record for SBC. Franklin's Gull: 24 Mar (1 ad, breeding plumage) McKellar Lake (MLG), 7 May (2) Is 13 (WGC). Bonaparte's Gull: 24 Mar (28) DYC (WGC); 24 Mar/1 Apr (600+125) McKellar Lake (MLG); 21 Apr (1) LKC (WGC). Ring-billed Gull: 24 Mar (2) DYC (WGC); 24 Mar/1 Apr (200+/40) McKellar Lake (MLG); 21 Apr/7 May (1-80) Is 13 (WGC). Herring Gull: 24 Mar (1) McKellar (MLG); 5 Apr (1) LHWR (RPF); 7 May (2) Is 13 (WGC). Caspian Tern: 23 Apr (1) PEF (VBR); 3 May (1) LKC (WGC). Common Tern: 12 May (2) PEF (MTOS); 17 May (1) Upper Blue Basin, REL, LKC (MAG). Forster's Tern: 29 Apr (1) Heloise, DYC, 1 May (3) DYC (WGC); 3/16 May (3/1) PEF (MLG, RWP); 4 May (4) HWR (MAG, Gail Greene); 5/ 12 May (5/1) PEF (MTOS); 3/7 May (4/2) Is 13, 3/18 May (3) LKC (WGC). Least Tern: 16/23 May (1) PEF (MLG), additional observations in LKC, SBC, OBC, DYC. Black Tern: 3/27 May (2/6) PEF (MLG); 11 May (3) TEC (MTOS); 30 May (50+) SFP (MAG). Black-billed Cuckoo: 5 May (2) MEM, 12 May (1) Mud Island, Memphis

(Charles W. McCrary et al.). Barn Owl: 15 May (1) Powell Lake Rd., HWR (MAG). Short-eared Owl: 6 Mar (3) LKC (MAG). Chimney Swift: 17 Mar (2) MEM (Bill Fowler), early SBC. Olive-sided Flycatcher: 11 May (1) SFP (RWP, MLG); 18 May (2) H 79W, LKC; 19 May (1) road to Is 13 (WGC). Yellow-bellied Flycatcher: 24 Apr (1) MEM (LCC). Bank Swallow: 3/5 May (1/82) MEM (MTOS); 2 May (40-50 nesting sites along a 3/4 mile field road, some colonies having only two nesting sites) LKC (WGC). Barn Swallow: 11 Mar (1) PEF (RWP) early. Fish Crow: 16 Mar (12) DYC (MAG, SDL); 19 Mar (6) REL, LKC (MAG); 20 Mar (5) SFP (HBD, CHB, SSL, BHW, VBR); 2 Apr (17) Little Ronaldson Slough, REL, LKC, 3/16 Apr (13/40+) Crockett Bottoms, Gooch WMA (MAG, Judy K. Knox);

Wren-Finch: Sedge Wren: 25 Mar (2) Lauderdale Co. (JBC,HSH). Water Pipit: 4 Mar (9) Phillipy Pits (MAG); 1 Apr (6) TEC (MLG, TAF). BELL'S VIREO: 19 May (1) Germantown, SBC (MLG), details submitted. Philadelphia Vireo: 30 April (2) PEF (DAM,VBR). Golden-winged Warbler: 22 Apr (1) PEF (RWP). Swainson's Warbler: 23 Apr (1) REL, LKC (MAG, TDP); 4 May (2) HWR, HYC (MLG, Marvin Nichols). Mourning Warbler: 12 May (1) PEF (MTOS). Hooded Warbler: 24 Mar (1) PEF (VBR). Painted Bunting: 14 May-EOP (2) (VBR, DAM), 15 May - EOP (2) PI (VBR, SBC, et.al.). Vesper Sparrow: 23 Mar (9) PEF (MGW); 1 Apr (5) TEC (MLG, TAF). Lark Sparrow: 1 April (1) PEF (MLG, TAF), early; 2 Apr (2) PEF (VBR, CHB, MGW). Grasshopper Sparrow: 13/17 Apr (2/1) PEF (VBR); 21 Apr (2) PEF (MLG). Song Sparrow: 25 May (2) TEC (MLG, RWP). Lincoln's Sparrow: 15 Mar (1) MEM (RWP); 24 Mar (5) TEC (MLG); 2 May (1) Tatumville Marsh, DYC, 5 May (5) PEF, (MTOS); (1) Old 104 N. Forked Deer River, GBC (MAG). Swamp Sparrow: 15 May (3) Eaton-Brazil Marsh, GBC (MAG), late West TN. Smith's Longspur: 23 Mar (1) PEF (MGW), late for West Tennessee data, but not for SBC unpublished records. Bobolink: 25 Apr (25) LKC (MAG); 30 Apr (24) LKC, 2 May (3 m) DYC (WGC); 9 May (37) TEC (MGW, VBR); 11 May (6) TEC (MTOS). Rusty Blackbird: 18 Mar (4) PEF (RWP); 20 Mar (10) SFP (HBD, et. al.). Brewer's Blackbird: 1 Apr (pair) PEF (MLG, TAF). RED CROSS-BILL: 23/24 May (5 or 6) Germantown, SBC (Robert Endres, *Kevin McKowan, m.ob.), 26 May (6-7 ad, 2 juv) young observed begging and being fed (RWP, MGW, JKP, GRP,VBR), first breeding record outside of Appalacian range in TN, third sight record for west TN.; 30 May (6-7) Germantown (TAF). Purple Finch: 23 Mar-24 Mar (4-1) Jackson, MDC (HSH), reports only from this location.

Locations: BRF - Britton Ford, Tennessee NWR, Henry Co.; DTC-Decatur Co.; DYC - Dyer Co.; GBC - Gibson County.; HAC - Hardeman Co.; HDC - Hardin Co.; HWR - Hatchie Wildlife Refuge, Haywood Co.; Is 13 - 12, Joe Echles Towhead, Lake Co.; LHWR - Lower Hatchie Wildlife Refuge, Lauderdale Co.; :LKC - Lake Co.; MDC - Madison Co.; MEM - Memphis, Shelby Co.; OBC - Obion Co.; PEF - Penal Farm, Shelby Co.; PLS - Paris Landing State Park, Henry Co.; PSP - Pickwick State Park, Henry Co.; REL - Reelfoot Lake, Obion and Lake Cos.; SBC - Shelby Co.; SFP - Shelby Forest State Park, Shelby Co.; TEC - The EARTH Complex, Memphis, Shelby Co.; TIC - Tipton Co.

Addendum: Black Tern: 19-22 May 1990, several thousand observed in flocks of approx. 600 each, flocks flying about 3 feet above the water, each flock 2-5 miles apart between Cairo, Mo. and Rosedale, Miss. (John Rumancik and Ken McMullen, U.S. Corps of Engineers, in two boats communicating with each other while on the river.

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HIGHLAND RIM AND BASIN REGION - David Vogt has resigned as regional compiler for this region, and, as yet, there is no replacement. Regrettably, no report follows. I wish to thank David for his past efforts - Editor.

EASTERN RIDGE AND VALLEY REGION - The mild winter blended into an early spring for most of March, with April and May having more normal temperatures. Seasonal precipitation ranged from 3 in. above average in Chattanooga to 0.7 in. above average in Johnson City, where the month of May was on the dry side. Lakes in the region were brought up to full summer levels earlier than in most years.

The "early spring" resulted in low numbers and the early departure of waterfowl, plus some early arrivals of other migrants. Cormorant numbers continue to increase and herons were pretty well represented. Because of high lake levels, shorebirds were generally restricted to marsh and pond edges. Controlled burns at Amnicola Marsh earlier in the year apparently enhanced conditions there, as American Bittern, Sora and Upland Sandpiper put in extended visits. The final year of the Breeding Bird Atlas project got off to a good start, with nesting records of Cattle Egret and hawks in the Chattanooga area, and with Barn Owls and Tree Swallows in the Knoxville and Tri-Cities areas. Other records of note follow.

Loon - Heron: Common Loon: 13 Apr (49)Tellico Lake, MOC (RDH, ARH, Steve and Rebecca Satterfield), max; 28 May (2) CHL (Nelson Bennett), 1rs. Horned Grebe: 15 Mar (1) DCL (JBH, Don Holt), 1rs. Double-crested Cormorant: 7 Apr-8 May (2-4) AUS (Stan Strickland, DH, RLK); "throughout period on KNX area lakes" (fide RDH); "1-2 regular thru period at NIL, CHL, SAB, & HRA" (m.ob., fide KHD); 16 May (20) Watts Bar Lake, MEC, RHC, RNC (Carl W. Campbell); 25 May (2) Rankin Bottoms, Cocke Co. (Jon A. Koella). American Bittern: 1-17 Apr (1) AMM (WGH et al.); 17 May (1) BLV (WGH). Great Egret: 23 Mar (1) AMM (WGH); 9 Apr (1) AUS (RLK); 29 Apr (1) SAB (KHD, LHD); 22 May (1) AMM (PCH). Snowy Egret: 23-25 May (1) AMM (PCH, WGH et al.). Little Blue Heron: 23 Mar (1 ad) Gunstocker Creek, HRA (KHD, LHD), new early arrival date for state. TRICOLORED HERON: 18 Apr (1) AUS (Shirley Wayland), second JNC - Elizabethton area record. Cattle Egret: 25 May (4, 1 on a nest) in a Great Blue Heron colony near Hiwassee Is., HRA, MEC-RHC line (Gene Van Horn). Green-backed Heron: 22 Mar (1) BLV (BGM), ers. Black-crowned Night-Heron: 23 Apr (1) DCL (JBH, Ben Britton et al.). Yellow-crowned Nigh-Heron: 15 May (1 on nest) near AMM (KHD).

Ducks - Bobwhite: Green-winged Teal: 14 May - 11 Jun (1) LST (BLC, RLK), 1rs. Canvasback: 5 Mar (1) NIL (KHD); 10 Mar (2) HRA (KHD, LHD); only reports. Greater Scaup: 2 Mar (350) CHL (KHD, LHD), Max; 12 Apr (6) CHL (KHD, LHD), 1rs. Bufflehead: 23 Apr (4) DCL (JBH, Ben Britton, et al.), 1rs. Red-breasted Merganser: 12 Apr (50) CHL (KDH, LHD), max; 5 May (7) AUS (RLK), 1rs. Ruddy Duck: 13 Mar (71) NIL (KHD), max. Osprey: 17 Mar (1) CH: (RJH), ers; 26 Mar (1) DCL (Jerry Rhinehardt), early there; 8 May (1) AUS (RLK), last there. Bald Eagle: 23 Mar (1 ad) Tennessee River Gorge, Marion Co. (RJH); 16 Apr (1 im) JNC (FJA). Northern Harrier; 10 Mar (5) Phipps Bend, HKC (DH), max; 20 Apr (1) WGC (LHTOS), 1rs. Cooper's Hawk: "on nest" BYC (KHD, JDR). Red-shouldered Hawk: "on nest" BYC, HLC, MEC & McMinn Co (KHD, JDR). Broad-winged Hawk: 27 Mar (1) WGC

(James Brooks), ers. Golden Eagle: 6 & 14 May (1 ad) along I-81, SLC (BLC), unusually late. Merlin: 14 Apr (1) AMM (RJH). Peregrine Falcon: 15 Mar (1) SAB (KHD, LHD). Northern Bobwhite: KNX Spring Count recorded second lowest number (29) in 38 years (fide RDH).

Rail - Phalarope: Sora: 12 Mar-3 May (1-4) AMM (WGH et al.); 26 Mar/19-23 Apr/5 May (1) AUS (RLK). Common Moorhen: 8 May (1) BLV (BGM). American Coot: 23 Mar (450) CHL (KHD, LHD), max. Sandhill Crane: see last report; 13 May (1) Long Is., Watts Bar Lake, RNC (fide Ed Collier), 1rs. Black-bellied Plover: 20 Mar (19) AMM (PCH), early date & large number. Lesser Golden-Plover: 21 Mar (2) SAB (LHD). American Avocet: 10 Apr (15-20 flying over water) SAB (KHD, LHD). Greater Yellowlegs: 24 Mar (1) SAB (C.Del Blum), ers. Lesser Yellowlegs: 16 Mar (1) BLV (fide KHD), ers; 26 May (1) LST (Linda Northrop et al.), 1rs. Solitary Sandpiper: 31 Mar (1) AUS (RLK), ers; 18 May (1) BLV (BGM), 1rs. Willet: 29 Apr (1) AUS (RLK). Spotted Sandpiper; 13 Apr (1) CHA (WGH), ers. Upland Sandpiper: 13 Apr - 4 May (1-4) AMM (WGH et al.), rare in region in recent years. Least Sandpiper: 28 Mar (1) AUS (RLK), ers away from CHA area wintering sites. Pectoral Sandpiper: 16 Mar (2) AUS (LHTOS), ers; 22 Mar (100) SAB (LHD), max. Dunlin: 2 Mar (10) SAB (KHD, LHD) 1rs at wintering site. Common Snipe: 2 Mar (87) SAB (KHD, LHD), max; 8 May (1) AUS (RLK), 1rs. American Woodcock: 23 Mar (nest w/4 eggs) Leesburg, WGC (Andy Ammann et al.); 7 Apr (ad w/3 yg) Morgan Springs, RHC (John H. Shaver, Jr.). RED-NECKED PHALAROPE: 26-27 May (2-4) LST (Linda Northrop et al.), 4th JNC area record.

Gull - Woodpecker: Laughing Gull: 29 Apr (1) AUS (RLK), 4th JNC-Elizabethton area record; 4 May (1) NIL (RJH). Caspian Tern: 1 Apr (1) CHL (WGH); 13/15 Apr (2/4) NIL (LHD/FJA); 10 Apr (2) Patrick Henry Lake, SLC (Marty Silvers). Common Tern: 4 May (2) NIL (RJH). Forster's Tern: 6/15 Apr (3/1) NIL (KHD/FJA). 19/29 Apr (!5/2) AUS (RLK); 4 May (3) NIL (RJH). Black-billed Cuckoo: 5 May (1) KNX Spring Count (Paul Pardue); 12 May (2) Hancock Co. (RDH, ARH); only reports. Barn Owl: 10 Apr (nest w/3 yg in chimney of old house) Morristown, Hamblen Co. (fide RDH); 30 Apr (1) near LaFollette, Campbell Co. (George W. McKinney); 1 May (nest w/5 yg in silo) Burem, HKC (RLK). 2 May (1) Talbott, Hamblen Co. (RLK); 2 May (fresh pellets and feathers in silo) near SAB (KHD, LHD); 11 May (1) Jonesborough, WGC (RLK). Short-eared Owl: 10 Mar- 8 Apr (1) Philpps Bend, HKC (DH et al.). Chimney Swift: 1 Mar (10) CHA (WGH), new early arrival date for state. Ruby-throated Hummingbird: 5 Apr (1) HLC (JSL), ers. Red-headed Woodpecker: one site each in KNC, JEC & MOC (fide RDH); at 5 sites in WGC (RLK).

Kingbird - Vireo: Eastern Kingbird: 13 Mar (1) Baileyton, GNC (BLC), 2nd earliest record in state. Horned Lark: 12 Mar (4) Tri-Cities Airport, SLC (RLK); 4 Apr (1) U.T. Plant Science Farm, KNC (ARH); 26 Apr (2 ad w/2 yg) Kingston Steam Plant, RNC (RLK, JWC). Tree Swallow: 20 Mar (1/2) CHA/AUS (WGH/RLK), ers; 6 Apr ("several defending tree cavities") Douglas Lake, JEC (RDH, ARH et al.); 4 May (pair nesting in bluebird box) Fort Loudoun Lake, Loudon County. (Robert Ledbetter); 11 May (pair nesting in bluebird box) White Pine, JEC (Jon A. Koella); "several reports of nesting in bluebird boxes in KNC and surrounding area" (fide RDH, J.B. Owen); pair nesting in bluebird box at AUS (RLK). Bank Swallow: 11 May (500 nest holes) New Market, JEC (RDH), an additional site to one reported last year, both in zinc mine tailings. Red-breasted Nuthatch: 6/10 Mar (1 each at 2 sites) CHA (WGH/

BGM), only reports. Sedge Wren: 4 May (1) AMM (RJH). Marsh Wren: 28 Apr-7 May (1) CHA (WGH); 5 May (1) AUS (RLK). Ruby-crowned Kinglet: 8 May (1) JNC (RLK), 1rs. American Pipit: 13 Mar (24) Boone Lake, SLC & WGC (RLK). Loggerhead Shrike: 9 Mar (3) GNC (JBH, Dan Nieves); 2 reports in KNC (RDH, ARH); 8-10 reports in WGC & SLC (LHTOS). White-eyed Vireo: 2 Apr (1) CHA (WGH), ers. Yellow-throated Vireo: 6 Apr (1) SAB (KHD, LHD), ers. Warbling Vireo: 20-23 Apr (1) KNC (ARH); 24 Apr (1) Kingsport, SLC (Stan Strickland); 5 May into Jun (1) LST (RLK).

Warbler - Grosbeak: Orange-crowned Warbler: 21 Apr (1) CHA (WGH); 27 Apr (1) WGC (DH); 7 May (1) BYC (C. Richard Hughes). Black-and-white Warbler: 23 Mar (1) HLC (JSL), ers. Prothonotary Warbler: 17 Apr (1) DCL (JBH), ers. Swainson's Warbler: 29 Apr-11 May (1) Baylor School, HLC (RJH et al.); 5 May (1) KNX Spring Count (Beth Lacy); both unusual. Connecticut Warbler: 5 May (1) JNC (RLK); 14 May (1) CHA (WGH). Hooded Warbler: 23 Mar (1) HLC (JSL), ers. Scarlet Tanager: 6 May (40) Tennessee River Gorge, Marion Co. (PCH), max. Dickcissel: 5 May (1) KNX Spring Count (CPN); 13 May into Jul (1) LST (BLC, DH). Vesper Sparrow: 16/31 Mar (1) AUS (LHTOS/RLK); 17 Mar/Apr 9-10 Apr (2/4) BLV (C. Del Blum/BGM). Grasshopper Sparrow: 9 Apr (2) BLV (BGM), ers. Fox Sparrow: 23 Mar (6) Cross Mountain, Campbell Co. (RDH, ARH, Boyd Sharp), max: 31 Mar (1) CHA (WGH), 1rs. Lincoln's Sparrow: 13 Mar (1) Piney Flats, SLC (RLK), first Mar record in JNC area; was this a wintering bird or an early migrant? Bobolink: 19 Apr-11 May (1-15) AMM (WGH et al.); 2 May (50) Kingston Steam Plant, RNC (ARH, Carol Coleman). Purple Finch: sporadic, low numbers (m.ob). Pine Siskin: scattered, low numbers; 10 May (5) CHA (Tommie L. Rogers), 1rs. Evening Grosbeak: 22 Apr (24) GNC (JBH et al.); 30 Apr (6) HLC (Gertrude Fleming), 1rs.

Locations: AMM - Amnicola Marsh, Hamilton Co.; AUS - Austin Springs, Washington Co.; BLV - Brainerd Levee, Hamilton Co.; BYC - Bradley Co.; CHA - Chattanooga; CHL - Chickamauga Lake, Hamilton Co. portion; DCL - Davy Crockett Lake, Greene Co.; GNC - Greene Co.; HKC - Hawkins Co.; HLC - Hamilton Co.; HRA - Hiwassee River Area, primarily Meigs Co., but also Bradley, McMinn & Rhea Cos.; JEC - Jefferson Co.; JNC - Johnson City; KNC - Knox Co.; KNX - Knoxville; LST - Limestone, Washington Co.; MEC - Meigs Co.; MOC - Monroe Co.; NIL - Nickajack Lake, Marion Co.; RHC - Rhea Co.; RNC - Roane Co.; SAB - Savannah Bay, Hamilton Co.; SLC - Sullivan Co.; WGC - Washington Co.

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EASTERN MOUNTAIN REGION - Precipitation for the period was from normal to slightly below normal. Warmer temperatures of the mild winter persisted through the early spring. This resulted in some notable early arrivals. Most passerines arrived at unusual dates, however.

Loon - tern: Common Loon: 9 Apr (14) WTL (RLK); 4 Apr (45) TEL (RDH,ARH), max.; 10 May (1) WTL (BLC), 1rs. Great Egret: 24 Apr (1) WTR (CFW). Yellow-crowned Night-Heron: 20 Mar (2) Hunter Swamp, ELI (GOW), ers; one nesting pair in Hunter Swamp, ELI, and one at Sycamore Shoals State Park, (RLK/FJA). Gadwall: 31 Mar-13 May (1) Erwin, UNC (RPL, GWS, RLK). American Wigeon: 21 Mar (20) WTL (RLK), max. Ring-necked Duck: 21 Mar (114) WTL (RLK), max. Lesser

Scaup: 21 Mar (10) WTL (RLK), max. Hooded Merganser: 6 Apr (3) WTR (CFW), 1rs. Red-breasted Merganser: 9 Apr (23) WTL (RLK), max.; 13 Apr (2m, 7f) TEL (ROH, ARH). Bald Eagle: 13 Apr (1 im) TEL (ROH, ARH, Steve and Rebecca Satterfield). Osprey: 9 Apr (1) WTL (RLK), ers. 16 Apr (1) Ripshin Lake, (RLK). Merlin: 16 Apr (1) RNM (RLK). Peregrine Falcon: 3 May (1) Greenbrier Pinnacle, GSMNP (RLK). Greater Yellowlegs: 24 Apr (2) WTR (CFW), max; 5 May (1) RNM at 3600' elev. (DH). Least Sandpiper: 29 Apr (1) Siam Valley, CAR (CFW), max. Common Snipe: 24 Mar (17) WTR (CFW), max. Bonaparte's Gull: 9 Apr (1) WTL (RLK). Caspian Tern: 11 May (1) SHL (BLC). Tern sp. (Common or Forester's): 13 Apr (1) TEL (RH, AH).

Cuckoo - waxing: Black-billed Cuckoo: 5 May (1) UNC (BLC, GWS et al.), only report. Northern Saw-whet Owl: 24 Mar, 3-7 Apr (1-2) RNM (James Brooks, RLK et al.). Chuck-wills-widow: 7 Apr (1) MIL (FJA), ers. Whip-or-will: 14 Apr (1) WTL (Glen D. Eller), ers. Ruby-throated Hummingbird: 6 Apr (1) MIL (FJA), ers. Red-headed Woodpecker: 23 May (pair copulating) TEL (Paul Pardue). Olive-sided Flycatcher: 5 May (1) Holston Mt., CAR (GOW, RDL et al.). Alder Flycatcher: 11 May (1) RNM (Jerry Nagel), early record by 3 days. Bank Swallow: 21 Apr (2) WIL (FJA). Common Raven: 1 Apr (1) MIL (Red Mayfield); 9 Apr (1) Doe River Gorge, CAR (RLK); 16 Apr-EOP (1-2) BUF (Jerry Nagel); 14 May (2) Big Bald Mtr., UNC (Red Mayfield, RLK); 18 May (2) Rocky Fork, UNC (RLK). Red-breasted Nuthatch: scarce on RNM. Brown Creeper: 16 Apr (2 singing) RNM (RLK). Cedar Waxwing: scarce Mar & Apr, common in May.

Vireo - grosbeak: Philadelphia Vireo: 5 May (1) Holston Mt., CAR (GOW, RDL et al.); 7 May (1) SHL (BLC). Red-eyed Vireo: 31 Mar (4) BUF (Tom McNeil), ten days record early. Pine Warbler: 4 Mar (1) CAR (Martha Dillenbeck), ers. Worm-eating Warbler: 14 May (nest w/6 eggs) Frozen Knob, UNC (RM, RLK). Swainson's Warbler: 5/9/25 May (1/1/1) BUF (RLK/DH/RPL), separate sites. Wilson's Warbler: 5 May (1) UNC (BLC, GWS et al.), only report. Vesper Sparrow: 16 Apr (2 singing) Round Bald, RNM (RLK). Red Crossbill: 3 May (2) Greenbrier Pinnacle. GSMNP (RLK). Pine Siskin: 14 May (1) Big Bald Mt., UNC (RLK), 1rs, very few reports. Evening Grosbeak: til late Mar (20-30) Simmerly Cr., CAR (Tom McNeil); 3 Apr (12) RNM (RLK); until 5 May (2) Shady Valley, Johnson Co. (John Shumate).

Locations: BUF - Buffalo Mt., Washington Co.; CRC - Carter Co.; ELI - Elizabethton; GSMNP - Great Smoky Mt. National Park; MIL - Milligan College, Carter Co.; RNM - Roan Mountain Carter Co.; SHL - South Holston Lake area, Sullivan Co.; TEL - Tellico Lake, Monroe Co.; UNC - Unicoi Co.; WTL - Watauga Lake, Carter Co.; WTR - Watauga River, Carter Co.

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FJA - Fred J. Alsop
DPB - Dianne P. Bean
GBB - Gil B. Beaver
CHB - Carolyn H. Bullock
BEB - Barbara E. Bullock
JBC - Joyce B. Campion
LBC - Larry B. Campion
WGC - William G. Chriswell
BBC - Ben B. Coffey, Jr.
JWC - J. Wallace Coffey
ECC - E. Camille Crenshaw
BLC - Brian L. Cross
DLD - Don L. Davidson
HBD - Helen B. Dinkelspiel
KHD - Ken H. Dubke
LHD - Lillian H. Dubke
RPF - Robert P. Ford
TAF - Tim A. Furr
WBF - William B. Fowler
MLG - Murray L. Gardler
MAG - Mark A. Greene
JBH - James B. Holt
PCH - Paul C. Hamel
WGH - William G. Haley, Jr.
AHH - Annie H. Heilman
RDH - Ron D. Hoff
ARN - Audrey R. Hoff
RJH - R. John Henderson
MDH - Marguerite D. Hernandez
AH - Allen Hight
HSH - Helen S. Hight
DH - Dan Huffine
RLI - Robert L. Ilardi
GLI - Ginger L. Ilardi
JLI - Jerry l. Ingles
AMJ - Albert M. Jenkins
RLK - Richard L. Knight
LFK - Lee F. Kramer
TL - Tom Laughlin
JSL - Jennie Sue Lyons
RPL - Richard P. Lewis
SDL - Selena D. Little
RWL - Ruth W. Luckado
RDL - Richard D. Lura
BGM - Barbara G. McMahan
NPM - N. P. McWhirter
JHM - Jose H. Martinez
FNM - F. Nickie Medley
DAM - Dollyenn Myers
AN - Alice Nair
CPN - Charles P. Nicholson
GRP - George R. Payne
JKP - Jeanne K. Payne
CWP - Chloe W. Peeples
RWP - Robert W. Peeples
TDP - T. David Pitts
CJP - C. J. Ploger
VBR - Virginia B. Reynolds
ELR - Erma R. Rogers
JDR - James D. Rowell, Jr.
MES - Mary E. Sheltons
DJS - Damien J. Simbeck
RWS - Richard W. Simmers, Jr.
NMS - Noreen M. Smith
QNS - Qunity N. Stykes
GWS - Glenn W. Swofford
ATT - Ann T. Tarbell
MCT - Michael C. Todd
WT - Wallace Todd
DFV - David F. Vogt
JEW - James E. Waldron
MGW - Martha G. Waldron
GOW - Gary O. Wallace
CFW - C. Frank Ward
DLW - Lillie D. Willard
BHW - Barbara H. Wilson
EKW - Eddie K. Wilbanks
TJW - Terry J. Witt
JBW - Jamie B. Wright
JTOS - Jackson Chapter, TOS
MTOS - Memphis Chapter, TOS
NTOS - Nashville Chapter, TOS
LHTOS - Lee Herndon Chapter, TOS

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